MONTHLY WEATHER REVIEW.

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INTRODUCTION.

The REVIEW for August, 1894, is based on reports from 3,239 stations occupied by regular and voluntary observers These reports are classified as follows: 149 reports from Weather Bureau stations; 41 reports from U. S. Army post surgeons; 2,284 monthly reports from State Weather Service and voluntary observers; 31 reports from Canadian stations; 246 reports through the Southern Pacific Railway Company; 386 marine reports through the co-operation of the Hydrographic Office, Navy Department, and "New York Herald Weather Service;" monthly reports from 37 U. S. Life-Saving stations; 65 reports from navigators on the Great Lakes; monthly reports from local services established in all States and Territories; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

The WEATHER REVIEW for this month has been prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the editor, but the statistical tables are furnished by the Division of Records and Meteorological Data, in charge of Mr. A. J. Henry, acting chief of that division.

CHARACTERISTICS OF THE WEATHER FOR AUGUST, 1894.

The most prominent meteorological features of the month of August were the absence of well developed cyclonic storms over the United States and the adjacent portions of the Atlantic and Pacific oceans; the general prevalence of high pressure and dry, hot weather over the interior of the country; the extensive drought, covering the greater portion of the country, except the south Atlantic and Gulf States; the excessive precipitation in western Texas and the consequent floods in the Rio Grande; the extensive forest and prairie fires, causing a cloud of smoke that overhung the country from Minnesota southward to Missouri and eastward to the Atlantic; the interesting aurora of August 19 and 20; the low water in the Mississippi River and its tributaries; the extreme southern limit reached by the ocean ice off the Banks of Newfoundland.

ATMOSPHERIC PRESSURE.

[*In inches and hundredths.*]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers not reduced to standard gravity and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), during August, 1894, is shown by isobars on Chart II. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border. This Chart also gives the so-called resultant wind directions for this month, based on the data given in Table IX of this REVIEW.

During the current month of August pressures have been highest, 30.08, in southeastern Florida, and nearly as high, 30.06, in the northwestern corner of Washington. The average lowest pressure was 29.81 at Yuma; the region of 29.85, or less, extended from central California southeast into the northwest portion of Mexico. A similar region of low pressure, 29.90, is found on the eastern slope of the Rocky Mountains, extending from western Saskatchewan southward into eastern Montana. In general, it would seem that the low pressure extending from the Gulf of California northward into British America as a trough between the high areas over the Pacific and Atlantic oceans owes its existence to the presence of the Rocky Mountain, the Andes, and the west coast ranges rather than to the existence of the continent on the east side of these mountains; the heated air of the continent is not so important a factor in the production of low pressures as is the obstruction offered by the mountain ranges to the movements of the atmosphere.

The normal distribution of atmospheric pressure and normal resultant wind direction for the month of August were approximately shown on Chart V of the REVIEW for August, 1893, as computed by Prof. H. A. Hazen, and are not now reproduced. As compared with the normal for August, the mean pressure for the current month was above the normal in Manitoba, Ontario, and Quebec, the maximum excess being 0.07 in Manitoba; pressure was also above the normal from British Columbia southeastward to Texas, the maximum excess being 0.09 at Denver; pressure was above the normal in California and Arizona, but below the normal on the coast of Oregon as also in New Brunswick and Nova Scotia. In general, therefore, except for these small areas of deficit, pressures were everywhere above the normal for August.

As compared with the preceding month of July, the pressures reduced to sea level show a fall of 0.09 on the coast of

Oregon and Washington, and 0.05 on the coast of North Carolina, but a rise, 0.10, in Manitoba. The line of no change passes from Cape Breton south to N. 40°, southwest into Virginia, west-northwest through Nebraska, southeast into Arkansas, and southwest through Texas; it reappears on the Gulf of California, passes northward between Utah and Wyoming, northwestward through Montana and Alberta, and along the Rocky Mountain Divide into British Columbia.

DIURNAL VARIATIONS.

The systematic periodic diurnal variations of pressure are shown by the hourly means given in Table VI.

AREAS OF HIGH AND LOW PRESSURE.

The following sections give some details as to the phenomena attending the individual areas of high and low pressure. The storm warnings officially issued by the Weather Bureau either through the general forecast official at Washington, or by the respective local forecast officials, are enumerated in connection with the respective areas of disturbance.

MOVEMENTS OF CENTERS.

The following table shows the date and location of the center at the beginning and ending of each area of high or low pressure that has appeared on the U. S. Weather Maps during the month, together with the average daily and hourly velocities. The monthly averages will differ according as we consider each path as a distinct unit, or give equal weight to each day of observation; in the first case the monthly average is taken by paths, in the latter case by days.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	52	113	11, a. m.	31	88	3,600	10.0	360	15.0
II	1, a. m.	47	74	4, a. m.	47	56	1,000	3.0	333	13.9
III	4, a. m.	46	127	5, a. m.	46	122	300	1.0	300	12.5
IV	9, a. m.	50	87	14, a. m.	45	58	1,900	5.0	380	15.8
V	9, a. m.	44	122	11, a. m.	44	109	600	2.0	300	12.5
VI	14, a. m.	53	99	18, a. m.	40	72	1,700	4.0	425	17.7
VII	20, a. m.	51	90	23, a. m.	37	77	1,100	3.0	367	15.3
VIII	23, a. m.	50	104	26, a. m.	42	98	600	3.0	200	8.3
IX	25, a. m.	48	128	31, a. m.	45	90	2,000	6.0	333	13.9
Sums							12,800	37.0	2,998	
Mean of 9 paths									333	13.8
Mean of 37 days									346	14.4
Low areas.										
I										
II	1, a. m.	47	91	5, a. m.	49	47	1,600	4.0	400	16.6
III	2, p. m.	52	115	6, p. m.	45	92	1,300	4.0	325	13.6
IV	6, p. m.	50	104	7, p. m.	43	100	600	1.0	600	25.0
V	4, a. m.	28	87	9, a. m.	31	91	500	5.0	100	4.2
VI	8, p. m.	44	75	10, a. m.	46	58	850	1.5	567	23.6
VII	7, p. m.	50	112	10, p. m.	44	98	800	3.0	267	11.1
VIII	11, p. m.	51	120	16, a. m.	48	58	3,600	4.5	800	33.3
IX	14, p. m.	52	112	18, p. m.	49	69	2,000	5.0	400	16.7
X	17, p. m.	50	115	19, p. m.	42	101	900	2.0	450	18.8
XI	18, p. m.	52	115	20, p. m.	52	106	400	2.0	200	8.4
XII	19, a. m.	38	79	22, a. m.	49	52	1,700	3.0	567	23.6
XIII	20, p. m.	53	115	24, a. m.	51	61	2,700	3.5	772	32.2
XIV	21, a. m.	30	103	26, a. m.	37	86	1,400	5.0	280	11.7
XV	22, p. m.	39	123	30, a. m.	46	42	4,100	7.5	547	22.8
XVI	26, a. m.	51	115	31, p. m.	48	61	3,000	5.5	545	22.7
XVII	30, p. m.	54	116	31, p. m.	50	109	700	1.0	700	29.2
Sums							26,150	57.5	7,520	
Mean of 16 paths									470	19.6
Mean of 57.5 days									455	19.0

HIGH AREAS.

I.—Beginning on the 1st, a. m., in Alberta, this moved eastward on the 2d and southeast on the 3d, when it was central in eastern Dakota; on the 4th in Iowa; 5th, a. m., in Ohio, at which time high pressure prevailed from Texas to Lake Superior, thence to Maine and southward to North Carolina; 6th, a. m., Pennsylvania; 7th, a. m., North Carolina; 8th, a. m., off the coast of Georgia; 9th and 10th, a. m., in northern Alabama; 11th, a. m., in southern Alabama; after this an area of high pressure remained in the Gulf of Mexico and the southern portion of the Gulf States until the 17th and, with occasional interruptions, throughout the month.

II.—On the 1st, a. m., pressure was slightly above normal in the St. Lawrence Valley, and on the 2d, a. m., in New Brunswick; 3d, a. m., in Newfoundland; 4th, a. m., south of Newfoundland, after which this high pressure disappeared.

III.—On the 4th, a. m., pressure was highest off the coast of Oregon, and the 5th, a. m., within that State, after which the pressure again declined.

IV.—On the 8th, a. m., pressure was rising, with northerly winds in Manitoba and the Lake region northward to Hudson Bay. On the 9th, a. m., pressure was highest north of Lake Superior; 10th, a. m., at the eastern end of Lake Superior; 11th, a. m., in New England; 12th, a. m., southwest of Nova Scotia; 13th, a. m., in southern Newfoundland; 14th, a. m., south of Newfoundland, after which this area disappeared.

V.—On the 9th, a. m., pressure was rising in British Columbia, and on the 10th, a. m., it was highest there; 11th, a. m., it was highest in Assiniboia; by the 12th, a. m., this high pressure had spread in all directions and the center could no longer be located.

VI.—On the 13th, a. m., pressure was again rising in British Columbia, and apparently in the regions to the northward, so that on the morning of the 14th the pressure was highest in Manitoba; 15th, a. m., northern coast of Lake Superior; 16th, a. m., northern portion of Lake Michigan; 17th, a. m., in Ohio; 18th, a. m., off the middle Atlantic coast, after which this can no longer be traced.

VII.—On the 19th, a. m., while pressure was low in Manitoba it was rising on the north and east; by the 20th, a. m., the highest pressure of the month was central north of Lake Superior. During the evenings of the 19th and 20th occurred the principal auroral display elsewhere described. 21st, a. m., highest pressure was on the northern border of Lake Superior; 22d, a. m., it was central on the southern portion of Lake Huron; 23d, a. m., to 25th, a. m., in Virginia; 26th, a. m., pressure had generally fallen and the central highest pressure had disappeared.

VIII.—On the 22d, a. m., pressure was rising in Assiniboia, in the rear of low No. XIII, and by the 23d, a. m., high pressure No. VIII was central in that region; 24th, a. m., it was central in North Dakota; 25th, a. m., in South Dakota; 26th, a. m., in Nebraska; at this time the area of high pressure stretched as a ridge from Colorado northeastward over Lake Superior into Labrador. By the 27th, a. m., this ridge had divided into two portions, respectively central in New Mexico and New England, after which these disappeared in the general high pressure that prevailed over the eastern half of the United States.

IX.—On the 24th, a. m., pressure was rising off the coast of Oregon, and on the 25th, a. m., it was highest in northwestern Washington, while low No. XV was moving east into Manitoba. By the 27th, a. m., the highest pressure was apparently in Stikine, and on the 28th, a. m., in Alberta; on the 29th, a. m., in Assiniboia, but stretching east and west from British Columbia into Manitoba; 30th, a. m., highest in Manitoba but again stretching as a ridge from Alberta southeast into Wisconsin; 31st, a. m., central in Wisconsin.

LOW AREAS.

During the month of August a number of ill-defined areas of low pressure have passed along the northern border of the United States, and it is believed that all depressions marked as "low" on the Daily Weather Map have been included in the following list:

I.—This number is given to the low area of Arizona and the Gulf of California. The pressure at Yuma, as reduced to sea level, was lowest at 8 p. m. on the following dates: 2d, 29.68; 6th, 29.71; 11th and 12th, 29.74; 17th, 29.71; 23d, 29.70; 30th and 31st, 29.75. These six minima represent low pressures averaging slightly below those of the corresponding six minima recorded during July. They occurred, as usual, in connection with the formation of troughs of low pressure in British Columbia. They do not represent cyclonic whirls moving over the surface of the globe, nor even stationary whirls, but the central troughs of successive low pressures formed in connection with the high pressures over the Pacific Ocean.

In general, the monthly and annual averages of local pressures give monthly and annual isobars inclosing areas of high and low pressure that must not be regarded as even approximately representing conditions of static equilibrium nor even of dynamic equilibrium, or the so-called steady motion. The passage over a given station of a preponderating number of low areas due to cyclonic whirls will produce a monthly average low pressure in the neighborhood of that station, but such a one as could not be maintained steadily in the presence of the high pressures shown by the monthly averages in its neighborhood. It would, therefore, be quite illogical to compare the monthly average isobars, isotherms, and winds in the neighborhood of such a region and seek to deduce any simple connection between them; the connection must be deduced primarily from the study of the individual simultaneous observations.

II.—This depression moved southeast into the Lake region, where it was central on the 1st, after which it moved northeast. It was attended with light rain on the 1st, but heavy rain on the 2d in most portions of the Middle and Eastern States. It disappeared on the 4th at the mouth of the St. Lawrence, but the area of low pressure remained near Newfoundland on the 5th and became area *B* of the North Atlantic series.

III.—This began on the 2d, p. m., in British Columbia at the northern end of the trough extending from the Gulf of California. The extensive area of high pressure, No. II, at that time stretched from Manitoba northward and southward, and as it moved southeast low area No. III moved eastward on the 3d and southeast on the 4th into North Dakota. Very little rain attended this low pressure and it gradually dissipated.

In anticipation of the approach of this disturbance signals were ordered as follows: Chicago, 4th, 10 p. m., northwest signals ordered for Lake Huron and at Grand Haven, Milwaukee, Green Bay, and Marquette; northeast signals at Chicago. Chicago, 5th, 10.20 p. m., warnings of severe local storms for Minnesota, North and South Dakota. Chicago, 6th, 10 a. m., southwest signals ordered for Alpena, Sault Ste. Marie, Green Bay, and Marquette. Chicago, 8th, 10.40 p. m., warnings of severe local storms for Wisconsin and Upper Michigan.

IV.—On the 6th, p. m., in the northern portion of the general depression containing low No. III, ther eappeared another low center, which is numbered IV. This extended southward, attended by high local winds, and disappeared on the 7th, p. m.

V.—On the 4th, a. m., the winds, as reported from the eastern portion of the Gulf of Mexico, indicated the presence of a cyclonic whirl. By the 5th, p. m., its presence east of Port Eads was clearly indicated, and by the 6th, p. m., the northerly wind of 34 miles at that point indicated its near approach. The progress of the whirl seems to have been nearly due north; it passed a little to the west of Pensacola about midday of the 7th, and then moved slowly westward, disappearing on the 9th in southern Mississippi. Very heavy rain attended this storm, whose dimensions, wind velocities, and slow movement entitle it to be classed in a category somewhere between the waterspout and the hurricane, but distinct from the ordinary tornado.

VI.—This depression appeared well defined on the map of the 9th, a. m., on the southeast side of the area of high pressure No. IV, which was at that time advancing southward into the very extensive depression left by the breaking up of the preceding low areas, Nos. III and IV. A trough was thus formed between the St. Lawrence Valley, where northerly winds prevailed, and the middle Atlantic States and New England, where southerly winds prevailed. This trough moved northeastward and by the 10th, a. m., had become a well-defined whirl near Newfoundland, after which it became the low area *B* of the North Atlantic series.

VII.—On the 7th, p. m., pressure was below the normal throughout the Rocky Mountain plateau, and several special depressions were indicated by the isobars. Area No. VII, in the southern portion of Alberta, apparently began its development at that time; during the 8th and 9th it moved southeastward, reaching South Dakota by the 10th, p. m., at which time a trough extended from Nebraska to Manitoba. The southern end of the trough then filled up, and the northern end retired northeastward without becoming an important disturbance.

VIII.—On the 11th, a. m., pressure was again low throughout the Rocky Mountain region from Mexico to British Columbia. The southern end of the trough belongs to the depression No. I, while the northern end moving southeastward receives the number VIII. By the 13th, p. m., it had reached the southernmost point of its path in Nebraska, after which it moved northeast and disappeared on the 16th in Newfoundland.

IX.—On the 14th, p. m., barometric conditions were very similar to those of the 15th, p. m., pressure being low throughout Alberta, Assiniboia, and Saskatchewan. Apparently a moderate depression had moved southeastward from British Columbia on the 13th, and by the 16th, p. m., it was central in Manitoba, and high winds, attending local storms, were reported from South Dakota. During the 17th this depression moved eastward on the northern border of the Lake region, where local rains and occasional wind gusts were reported. During the 18th and 19th low pressure, with light rains, prevailed over the Middle States and New England, while the central lowest pressure was far to the northward and disappeared over the Gulf of St. Lawrence.

In connection with this storm the following signals were ordered: Chicago, 17th, 10 a. m., southwest signals for Sault Ste. Marie and Marquette.

X.—While No. IX was near Lake Superior another depression began in Alberta on the 17th, p. m., and moved rapidly southeastward, disappearing on the 19th, p. m., in Nebraska.

XI.—While No. X was moving southeast through South Dakota another depression began in Alberta on the 18th, p. m., and moved slowly eastward, reaching the central portion of Assiniboia by the 20th, p. m., where it disappeared.

XII.—On the 19th, a. m., a depression had begun to form in West Virginia which, after moving eastward, turned to the northeast along the New England coast, with increasing winds; on the 21st it passed over Newfoundland, and on the 22d, a. m., it was apparently central near the coast of Labrador, after which its history is given as area *F* of the North Atlantic series.

XIII.—On the 20th, p. m., an area of low pressure existed in Alberta, which was in fact but a continuation of low No. XI, which now began to move eastward after having sent off the smaller depressions Nos. X and XI. By the 23d, p. m., this depression had passed eastward to the north of the St. Lawrence, after which it disappeared.

XIV.—During the 21st the high pressure advancing southward over the Lake region indicated that a decided disturbance must exist far to the south. In northern Mexico and in western Texas a slight barometric depression appeared on the morning of the 22d. This depression moved eastward, reaching the Mississippi on the 23d, at which time also pressure was lowest at Yuma. Low pressure continued in the lower Mississippi valley until the 26th, with a moderate and ill-defined cyclonic circulation of the winds and general rains.

XV.—This depression appears to have begun on the 22d, p. m., in northern California, as a cyclonic whirl, between the northerly winds on the coast and the southerly winds in the interior; it moved northward into British Columbia and thence eastward along the northern border of our stations, disappearing on the 30th southeast of Newfoundland.

On the 26th, p. m., as this depression approached Lake Superior the following signals were ordered: Chicago, 26th, 10.30 p. m., warnings of severe local storms for Upper and Lower Michigan.

XVI.—On the 26th, a. m., pressure was still rising in British Columbia and Alberta in the rear of low No. XV, but by the 26th, p. m., had again begun to fall, owing to the formation of low No. XVI which moved southeastward into South Dakota, while low No. XV moved rapidly eastward. On the 28th, p. m., No. XVI extended as an indefinite depression from South Dakota to Idaho, between northerly and southerly winds, but by the 29th, a. m., the western end had closed up and the eastern end was a well-defined low area, central in southern Michigan. It moved eastward, reaching the St. Lawrence Valley on the 30th, sending a temporary depression southeastward into New England. The main center disappeared on the 31st in the Gulf of St. Lawrence.

XVII.—This depression began on the 30th, p. m., in Alberta and on the 31st, p. m., was central in Assiniboia. Its further history belongs to September.

NORTH ATLANTIC METEOROLOGY.

[*Pressure in inches and millimeters; wind-force by Beaufort scale.*]

NORMAL CONDITIONS.

The normal barometric pressure for August over the North Atlantic Ocean, as deduced from international simultaneous meteorological observations taken at Greenwich noon and not reduced to standard gravity, is highest, 30.20 in a small region between N. 30° and N. 40°, W. 23° and W. 48°; it is lowest, 29.70 (754), in two small regions (1) north of Hudson Bay; (2) between Iceland and northeastern Greenland. On the Pacific Ocean a similar area of high pressure prevails between N. 40° and N. 20°, and west of W. 140° From this Pacific area a narrow prolongation extends northeastward to Vancouver Island, giving high pressures to the coast of Oregon. In general, the pressure is low, 29.80 or less, over the entire Polar region north of N. 60°, but is higher in northern Siberia than in northern America.

As compared with July the normal pressures for August are higher throughout the United States, British America, the Polar regions, and Asia, but lower over the Atlantic and Pacific oceans. These changes are such as to indicate that between the 5th and 10th of August the distribution of pressure in the Northern Hemisphere has reached the extreme condition peculiar to summer temperatures, and by the 15th of August has already begun its retrograde movement toward the condition appropriate to midwinter. As these barometric changes are the result of corresponding changes in the general circulation of the atmosphere, whereas the temperatures at the surface of the earth show no such decided thermal retrogression until some weeks later, we must conclude that the seasonal changes take place more promptly in the upper strata of the atmosphere than in the lower, or in other words that the mobility of the upper portion of the atmosphere is greater than that of the lower portion, a conclusion that is entirely in accordance with the well-recognized fact that the lower layer of air experiences various forms of resistance from the earth's surface and the ascending currents of warm air, while the upper layers glide over these with comparatively little resistance. The first effect of the southward motion of the sun is to diminish the quantity of heat received by the surface of the land and ocean in the Northern Hemisphere; this effect is felt in the regions north of N. 60° between June 15 and August 15, more than in the regions to the south of it, and the first result is not so much a diminution of temperature at the surface of the earth as a diminution of the ascending component of the atmospheric motion.

The normal zone of maximum frequency of paths of centers of low pressure during the month of August passes from some unknown point on the coast of Alaska southeastward to Lake Superior, thence eastward over Newfoundland and northeast to the Faroe Islands, thence eastward into central Russia. The general distribution of pressure indicates that these special areas of low pressure begin as whirls in the upper atmosphere attending the overflow from the high pressure of the Pacific northeastward over Alaska into the low pressure of the Arctic; they are propagated eastward as incidents in the general overflow from the tropical areas of high pressure. The number of such whirls as recorded is less in August and the summer months than in December and the winter months, but this is partly explained by the fact that the whirls occur on the extreme northern limits of our reports and partly by the probability that some of those in the upper layers do not extend down to the surface of the ground with sufficient definiteness to be recognizable on our maps. The other prominent belts of storm tracks are those that pass northeastward through the China and Japan seas and those that pass over the West Indies westward to the Florida coast and thence northeast to Newfoundland. These storms represent whirls that originate in the tropical regions whenever the cold, dry air descending over continental areas, such as China, the United States, Brazil, or northern Africa, has an opportunity to intrude into the moist air of the tropics.

The normal rate of progress of storm centers during August is 26 miles per hour when moving eastward in the northern portion of the United States, 23 miles per hour when moving east over the North Atlantic Ocean, 18 miles per hour when moving eastward through Europe, and 20 miles when moving northeast through the China and Japan seas and the northern portion of the Pacific Ocean. Tropical storms moving westward average 18 miles per hour in the West Indies and 10 miles per hour in the East Indies.

NORTH ATLANTIC STORMS.

The following paragraphs give some account of the areas of low pressure and strong winds on the North Atlantic Ocean during August, 1894. Daily charts are compiled at the Weather Bureau showing the atmospheric conditions over the United States, Europe, and the Atlantic Ocean, as nearly as practicable at Greenwich noon, and afford a basis for approximating the locations and paths of the more important areas of high and low pressure.

No extensive severe storms were reported during the month of August in the North Atlantic Ocean. The numerous small areas of low pressure that have passed eastward from the North American continent have either filled up or passed to the north of the region covered by our reports. The low pressure of the southern Caribbean Sea has also failed to develop any extensive disturbance. The individual low pressures are enumerated as follows:

A. This was a continuation of *F* from the series for July and was central on the 1st, noon, at N. 58°, W. 15°; 2d, noon, N. 61°, W. 8°; its northeastward motion now changed to southeast and the low pressure was central on the 3d, noon, at N. 56°, E. 5°, and the 4th, noon, N. 55°, E. 8°, after which it disappeared. On the 3d and 4th pressure was low over Scandinavia and northern Europe in connection with the very general depression extending from Hudson Bay eastward to Norway.

B. This was a continuation of No. XIII of the U. S. series for July which was central on the 1st near Lake Superior, and on the 2d over Lake Huron. During the 3d and 4th this passed over Labrador; on the 5th it was central near the Straits of Belle Isle, and on the 6th, noon, at N. 56°, W. 36°; 7th, noon, N. 57°, W. 26°; 8th, noon, N. 59°, W. 11°; 9th, noon, N. 60°, E. 4°; 10th, noon, N. 60°, E. 10°; 11th, noon, N. 66°, E. 18°; 12th, noon, N. 60°, longitude 0°. At this time pressure was steadily diminishing to the eastward as far as the eastern portion of Russia, and so continued until the 15th, while *B* moved northeastward and disappeared.

C. Between the 11th and 12th pressure fell rapidly west of Great Britain, and a depression appeared on the 12th, noon, central at N. 60°, W. 3°; it moved southeast, and on the 13th, noon, was at N. 57°, E. 8°, and the 14th, noon, N. 57°, E. 15°, after which it disappeared.

D. On the 9th a long trough extended from New England to the Straits of Belle Isle, and on the 11th, noon, a moderate depression was central in southern Newfoundland. By the 12th it was approximately at N. 57°, W. 47°; 13th, N. 58°, W. 29°; 14th, noon, N. 60°, W. 10°; 15th, noon, N. 57°, W. 5°; 16th, noon, N. 60°, E. 5°; 17th, noon, N. 65°, E. 15°; 18th, noon, N. 57°, E. 23°; 19th, noon, N. 63°, E. 20°. On the latter date this depression seems to have disappeared in the presence of others that were approaching Norway or developing over the North Sea.

E. This was a continuation of U. S. series No. VIII, which was central on the 14th, noon, in the upper Lake region; 15th, noon, in the St. Lawrence Valley; 16th, noon, near the west coast of Newfoundland, and on the 17th, noon, it extended as a trough from Nova Scotia northeastward, having two special depressions central, respectively, near Cape Breton and about N. 54°, W. 42°. The latter moved northeast beyond our reports. The former depression developed slowly south and east of Newfoundland and had disappeared by the 19th.

F. This appeared on the 20th as an indefinite depression off the middle Atlantic coast, and was a continuation of U. S. series No. XII. It was central on the 21st, noon, in the Gulf of St. Lawrence, and on the 22d, noon, on the coast of Labrador, at about N. 55°, W. 58°. It then apparently moved northeastward, but beyond the northern limits of our reports, while an area of high pressure, unusual for that region, prevailed on its southeastern border as far north as Iceland and the Faroe Islands. By the 25th, noon, the northern portion of this area of high pressure began to recede southward, but on the 28th, noon, pressure still continued high from the Shetlands westward. Meanwhile an extensive area of low pressure had apparently traveled eastward from Greenland to northern Scandinavia and Russia, where it prevailed from the 26th to the 29th.

G. This appeared on the 28th, noon, as a slight depression at about N. 40°, W. 60°. At noon on the 29th it was central at N. 42°, W. 58°, as a small hurricane, although the highest winds reported were of force 10 only; on the 30th, noon, N. 48°, W. 49°; on the 31st, noon, N. 53°, W. 42°. By this date the cyclonic whirl seems to have been generally broken up.

OCEAN FOG FOR AUGUST, 1894.

The limits of fog belts west of the fortieth meridian, as reported by shipmasters, are shown on Chart I by dotted shading. Near the Banks of Newfoundland fog was reported on 26 dates; between the fifty-fifth and sixty-fifth meridians on 16 dates; and west of the sixty-fifth meridian on 8 dates. Compared with the corresponding month of the last six years, the dates of occurrence of fog near the Grand Banks numbered 5 more than the average; between the fifty-fifth and sixty-fifth meridians, 4 more than the average; and west of the sixty-fifth meridian, 2 less than the average.

OCEAN ICE IN AUGUST, 1894.

The following table shows the southern and eastern limits of the regions within which icebergs or field ice were reported for August during the last thirteen years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
	° ′	° ′		° ′	° ′
August, 1882	46 50	46 00	August, 1882	46 50	46 00
August, 1883	43 26	51 41	August, 1883	48 00	44 00
August, 1884	43 24	48 44	August, 1884	47 50	43 50
August, 1885	43 48	52 04	August, 1885	48 03	42 45
August, 1886	48 35	48 46	August, 1886	50 00	48 00
August, 1887	42 21	49 51	August, 1887	48 06	40 00
August, 1888	Straits of Belle Isle		August, 1888	51 33	55 00
August, 1889	43 34	48 38	August, 1889*	53 00	45 00
August, 1890	42 30	50 21	August, 1890	50 13	39 10
August, 1891	44 07	52 05	August, 1891	47 32	42 45
August, 1892	46 45	53 00	August, 1892	48 43	44 49
August, 1893	44 53	49 21	August, 1893	46 28	46 02
August, 1894	40 43	47 00	August, 1894	49 26	44 47
Mean	44 15	50 12	Mean	48 54	44 47

* Isolated field ice in N. 58°, W. 40°.

The above table shows that during August, 1894, ice was reported on the 19th, about $2\frac{3}{4}°$ south of the southern limit of ice for the corresponding month of the last twelve years. The position of easternmost ice for the current month was reported on the 8th, and was about the average eastern limit for August.

The limits of the region within which icebergs or field ice were reported for August, 1894, are shown on Chart I by crosses.

TEMPERATURE OF THE AIR.

[*In degrees Fahrenheit.*]

The distribution of the monthly mean temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart II; the lines are drawn over the high irregular surface of the Rocky Mountain plateau, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

NORMAL TEMPERATURE.

In Table II, for voluntary observers, the mean temperature is given for each station, but in Table I, for the regular stations of the Weather Bureau, both the mean temperatures and the departures from the normal are given for the current month. In the latter table the stations are grouped by geographical districts, for each of which is given the average temperature and departure from the normal; the normal for any district or station may be found by adding the departures to the current average when the latter is below the normal and by subtracting when it is above.

MONTHLY MEAN TEMPERATURE.

For the regular stations of the Weather Bureau the monthly mean temperature is the simple mean of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

During August, 1894, the highest mean temperatures at regular Weather Bureau stations were: Key West, 83.6; Jacksonville, 82.2; Savannah, 81.2; Yuma, 89.9. The lowest mean temperatures were: Tatoosh Island, 57.0; Point Reyes Light, 54.4; San Diego, 67.0; Eastport, 59.2; Portland, Me., 64.6; Sault Ste. Marie, 59.8; Duluth, 64.9; Marquette and Northfield, 61.2.

YEARS OF HIGHEST MEAN TEMPERATURE FOR AUGUST.

The mean temperature for August, 1894, was the highest on record at regular Weather Bureau stations, as shown in the following table, which also gives the highest previous record:

Stations.	August, 1894.		Highest previous.	
	Mean temperature.	Departure from normal.	Temperature.	Year.
Tatoosh Island, Wash	57.0	+1.0	56.0	1888
Pysht, Wash	60.0	+1.0	59.4	1886
Port Angeles, Wash.	59.3	+2.5	59.3	1891
Astoria, Oreg.	65.2	+3.6	65.2	1891
Spokane, Wash.	71.4	+1.1	71.4	1888
Walla Walla, Wash	70.8	+2.4	76.6	1888
Williston, N. Dak.	70.8	+3.3	70.8	1882
Bismarck, N. Dak	71.7	+3.8	71.3	1878
Rapid City, S. Dak	73.4	+3.2	73.4	1881
Valentine, Nebr	74.0	+5.6	73.0	1889
Huron, S. Dak.	72.8	+3.8	71.7	1881
Columbia, Kans	78.4	+4.7	75.9	1886
Wichita, Kans	79.2	+1.4	77.5	1892
Topeka, Kans	78.6	+1.9	76.0	1892
Kansas City, Mo	78.3	+3.6	76.6	1892
Springfield, Mo.	75.9	+0.6	75.8	1892
Escanaba, Mich	68.0	+1.6	67.9	1892
Lexington, Ky	76.0	+3.1	75.1	1874
Parkersburg, W. Va.	73.8	+1.1	73.3	1892

YEARS OF LOWEST MEAN TEMPERATURE FOR AUGUST.

The mean temperature for August, 1894, was the lowest on record at regular Weather Bureau stations, as shown in the following table:

Stations.	August, 1894.		Lowest previous.	
	Mean temperature.	Departure from normal.	Temperature.	Year.
Abilene, Tex	76.4	−4.3	78.7	1892
Shreveport, La	78.8	−3.4	78.9	*
Galveston, Tex.	80.2	−2.6	81.2	1879
Narragansett Pier, R. I	66.7	−1.7	67.2	1885
Vineyard Haven, Mass.	69.0	−2.0	70.0	1889
Nantucket, Mass	66.4	−1.0	67.4	*
Block Island, R. I.	67.1	−1.0	67.2	*

* Frequently.

MAXIMUM TEMPERATURE.

The maximum temperatures of the month at regular stations of the Weather Bureau are given in Table I, from which it appears that the highest maxima were: Columbia, S. C., Fort Sill, St. Louis, Keokuk, Hannibal, Dubuque, Des Moines, Wichita, Bismarck, Miles City, and Tucson, 100; La Crosse, 101; Sioux City, Columbia, Kans., and Topeka, 102; Nashville, 103; Roseburg and Fort Smith, 104; Columbia, Mo., 105; Sacramento and Walla Walla, 108; Fresno City, 109; Yuma and Red Bluff, 110.

The lowest maxima were: Tatoosh Island, 80; Eureka, 79; San Diego and Corpus Christi, 90; Key West and Jupiter, 91; Hatteras, 86; Block Island and Narragansett, 77; Eastport, 84; Sault Ste. Marie, 82.

YEARS OF HIGHEST MAXIMUM TEMPERATURE FOR AUGUST.

The maximum temperatures for August were the highest on record at regular Weather Bureau stations, as shown in the following table:

Stations.	August, 1894.		Highest previous.	
	Maximum.	Excess above previous record.	Temperature.	Year.
Tatoosh Island, Wash.	80	+6	74	1893
Neah Bay, Wash.	82	+6	76	1893
Astoria, Oreg.	88	+5	83	1890
Walla Walla, Wash.	108	+3	105	1891
Roseburg, Oreg.	104	+5	99	1891
Eureka, Cal.	79	+7	72	1891
Sacramento, Cal.	108	0	108	1888
Helena, Mont.	95	0	95	*
Concordia, Kans	102	0	102	1888
Kansas City, Kans	100	+1	99	1892
Springfield, Mo.	97	0	97	1888
Fort Smith, Ark	104	0	104	1886
La Crosse, Wis.	101	+4	97	1891
Dubuque, Iowa	100	+1	99	*
Davenport, Iowa.	98	0	98	1887
Raleigh, N. C.	96	0	96	1888
Columbia, S. C.	100	+1	99	1888
Charleston, S. C.	99	+1	98	*

* Frequently.

MINIMUM TEMPERATURE.

The minimum temperatures of the month at regular stations of the Weather Bureau are given in Table I, from which it appears that the lowest minima were:

St. Vincent, 38; Northfield, 33; Portland, Me., 46; Sault Ste. Marie, Marquette, Laramie, and Idaho Falls, 42; Moorhead, 41; Bismarck, Williston, Havre, Port Huron, and Colorado Springs, 43; Huron, Cheyenne, La Crosse, Alpena, Winnemucca, Olympia, and Neah Bay, 44; Carson City, 37.

Among the highest minima were: Jupiter, 72; New Orleans, 71; Galveston and Corpus Christi, 70; Tampa, Pensacola, and Mobile, 69; Key West, Port Eads, Jupiter, and Jacksonville, 68.

YEARS OF LOWEST MINIMUM TEMPERATURE FOR AUGUST.

The minimum temperatures for August were the lowest on record at regular Weather Bureau stations, as shown in the following table:

Stations.	August, 1894.		Lowest previous.	
	Minimum.	Deficit below previous record.	Temperature.	Year.
Carson City, Nev	37	0	37	1891
Oswego, N. Y.	50	−1	50	*
Northfield, Vt.	33	−3	35	*
Portland, Me	46	0	46	1892
Boston, Mass	47	0	47	*
Narragansett Pier, R. I.	43	−2	45	*
Vineyard Haven, Mass.	54	−1	55	*
New London, Conn	47	−1	48	*
Key West, Fla	68	−2	70	*

* Frequently.

DEPARTURES FROM NORMAL TEMPERATURE FOR AUGUST, 1894.

As compared with the normal for August the mean temperatures for the current month were decidedly in excess in Alberta, Assiniboia, Manitoba, and southeastward to Kentucky. The ridge of greatest excess includes the following: Edmonton, 4.0; Qu'Appelle, 5.1; Bismarck, Huron, and La Crosse, 3.8; Valentine, 5.6; Omaha, 5.3; Des Moines,

4.0; Topeka, 4.9; Louisville and Lexington, 3.1. The line of no departure extends from Chesapeake Bay northwest over Lake Superior and again southwestward to southern Arkansas and thence northward to northern California. The region of deficit in temperature covers the southern portion of the country from California to Florida and the greater part of the Atlantic coast. The principal deficits were: Montreal, 4.5; Quebec, 4.4; Abilene, 4.3; Galveston, 2.6; San Diego, 2.7.

Considered by districts, the mean temperatures for the current month show the following departures from normal temperatures:

Positive departures: Ohio Valley and Tennessee, 1.8; lower Lakes, 0.1; upper Lake region, 0.3; North Dakota (extreme northwest), 3.3; upper Mississippi valley, 3.1; Missouri Valley, 4.0; northern slope, 2.7; middle slope, 1.0; middle plateau, 0.8; northern plateau, 2.8; north Pacific, 2.5; middle Pacific, 0.6.

Negative departures: New England, 1.0; middle Atlantic, 0.6; south Atlantic, 0.1; Key West, 0.5; east Gulf, 0.8; west Gulf, 1.7; southern slope (Abilene), 4.3; southern plateau, 1.9; southern Pacific, 1.5.

For certain voluntary stations of rather long periods of observation the normal and extreme mean temperatures and the departures are shown in detail in Table X *a*, which is now placed among the meteorological tables instead of being inserted in the text as heretofore.

THE DAILY AND MONTHLY RANGES OF TEMPERATURE.

The greatest daily range of temperature is given for each of the regular Weather Bureau stations in Table I, which also gives data from which may be computed the extreme monthly ranges for each station.

Greatest daily ranges.—Large values: Havre, 49; St. Vincent and Huron, 45; Idaho Falls, 48; Laramie, 44; Miles City, Bismarck, Winnemucca, and Sacramento, 43; Roseburg, 44. Small values: Hatteras, 14; Block Island, 15; Nantucket, Jupiter, Pensacola, Galveston, and Corpus Christi, 16; New Orleans, 17; Key West, 18.

Extreme monthly ranges.—Large values: Huron, 55; Bismarck and La Crosse, 57; Havre, 56; Walla Walla, 60; Sacramento, 58. Small values: Hatteras and Jupiter, 19; Corpus Christi, 20; New Orleans and Pensacola, 21; Galveston, Block Island, and Mobile, 22; Port Eads, Tampa, and Key West, 23.

ACCUMULATED TEMPERATURES.

From January 1 to the end of the current month the average temperature for each geographical district was above or below the normal by an amount that is given in the last column of the following table. The accumulated monthly departures from normal temperatures, as given in the second column, may be used for comparison with the departures of current conditions of vegetation from the normal conditions.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
New England	+ 8.1	+ 1.0	Key West	− 4.0	− 0.5
Middle Atlantic	+12.0	+ 1.5	East Gulf	− 0.9	− 0.1
South Atlantic	+ 5.1	+ 0.6	West Gulf	− 1.1	− 0.1
Ohio Valley and Tennessee	+11.3	+ 1.4	Southern slope (Abilene)	− 0.4	0.0
Lower Lake	+18.7	+ 2.3	Southern plateau	−16.3	− 2.0
Upper Lake	+23.6	+ 3.0	Middle plateau	− 8.3	− 1.0
North Dakota (Ex. NW.)	+22.5	+ 2.8	Northern plateau	− 2.0	− 0.2
Upper Mississippi	+21.8	+ 2.7	Northern Pacific	− 7.3	− 0.9
Missouri Valley	+17.8	+ 2.2	Middle Pacific	−13.2	− 1.6
Northern slope	+ 5.0	+ 0.6	Southern Pacific	−20.3	− 2.5
Middle slope	+ 3.8	+ 0.5			

DIURNAL PERIODICITY.

The regular diurnal period in temperature is shown by the hourly means given in Table V for all stations having self-registers.

LIMITS OF FREEZING TEMPERATURE.

The region within which the air has had a freezing temperature at some time during the month is bounded by the minimum isotherm of 32°. During August this minimum does not occur at regular Weather Bureau stations, except at the summits of Mt. Washington and Pikes Peak; its occasional occurrence at voluntary stations is shown in Table II.

PERIODS OF HIGH TEMPERATURE.

The maximum temperatures of August, like those of July, generally occurred in connection with areas of high pressure and clear sky, but during the current month they were considerably affected by the clouds of smoke that covered the interior of the continent. The principal periods of high temperature were as follows:

(A) On the 8th the maximum temperatures of the month occurred in southern Minnesota and the adjacent portions of Wisconsin, southern Michigan, northern Ohio, New York, Pennsylvania, Maryland, and northern Illinois. On the 9th this area of maximum temperature had pushed southward over the greater part of Virginia, North Carolina, West Virginia, Ohio, Indiana, and Iowa. On the 10th it had covered South Carolina and Kentucky, and on the 11th, Kansas, Missouri, and the coast of Georgia. During the 13th and 14th the maximum temperatures of the month occurred in the central portion of the Gulf States.

(B) The maximum temperatures of the Pacific coast generally occurred at the close of the month, beginning on the 25th in Nevada, and extending on the 26th along the immediate coast of California, reaching San Diego on the 27th, and on the same date throughout northern California and western Oregon, and ending on the 28th in the northwestern corner of Washington.

(C) On the 23d the maximum temperatures occurred at Marquette and Sault Ste. Marie; this warm area moved southeastward and, on the 24th, prevailed from Buffalo to Eastport.

PERIODS OF LOW TEMPERATURE.

The minimum temperatures occurred principally in the following groups:

(A) On the 3d in Minnesota, South Dakota, Iowa, southern Wisconsin, and northern Illinois. On the 4th this cold area had moved southward over Kansas, Missouri, Illinois, Indiana, Kentucky, western Ohio, and southern Michigan; on the 5th over Indian Territory, portions of Arkansas, Missouri, Tennessee, and by the 6th, over Virginia, North and South Carolina, northern Georgia, Alabama, central Mississippi, Louisiana, and Texas.

(B) On the 21st the minima of the month occurred at Duluth and Marquette, and by the 22d this area of monthly minima had extended southeastward over the lower Lakes, the Middle States, and New England.

AREAS OF 20° RISE IN TWENTY-FOUR HOURS.

The daily weather charts show by heavy dotted lines the regions over which the temperature has risen 20° in the preceding twenty-four hours.

Such rapid rises occur less frequently in summer than in winter; they are largely due to the rapid descent and rapid warming by compression of layers of air that are, by reason of their dryness, rather denser than the surrounding air; they are also frequently due to the rapid descent of air flowing toward the regions of low pressure near the center of a cyclone.

The only area of 20 rise in twenty-four hours during the current month seems to have been that of the 26th, a. m., in Manitoba, having an area of 100 by 150. This was on the

south side of low pressure area No. XV, which was then central in Manitoba.

AREAS OF 20° FALL IN TWENTY-FOUR HOURS.

A fall of temperature of 20°, or more, in twenty-four hours is not called a cold wave by the Weather Bureau unless the temperature falls below 40°, and is, therefore, likely to cause a frost injurious to vegetation, but all falls of 20° are indicated on the Daily Weather Map by inclosing the areas within which they occur by heavy dotted lines, and the following list enumerates those regions for the month of August (the dimensions of the principal axes of the areas are stated in miles):

(A) 1st, 8 p. m., 100 by 100, eastern North Dakota.

(B) 9th, 8 p. m., 200 by 100, southern portion of Lake Michigan.

(C) 13th, 8 p. m., 500 by 300, Manitoba, Assiniboia, and North Dakota. 14th, 8 p. m., 300 by 150, Lake Superior and Upper Michigan.

(D) 20th, 8 p. m. 200 by 100, Upper Michigan. 27th, 8 a. m., 200 by 100, Manitoba. This small area may be considered as largely a simple return to normal conditions following the unusual rise of temperature on the preceding day.

(E) 27th, 8 p. m., 500 by 300, Alberta and Saskatchewan. This area of falling temperature represented the advancing front of an extensive area of high pressure. 28th, 8 p. m., 400 by 200, Idaho and western Montana.

FROSTS.

Notwithstanding the high temperatures of August, a few reports of frosts have been received. During the spring months a minimum temperature of 40° in the shelters of the Weather Bureau is likely to be accompanied by frost on the ground in the open air, but it has been noticed on several occasions that this temperature limit is rather low; thus, Mr. A. E. Ackworth, of Mardela Springs, Md., writes that the records at his station, as kept by himself and Dr. Ker, show that "out of 74 frosts 33 occurred when the temperature was above 40° in April, and 1 when the minimum temperature was as high as 52°, and that ice and snow occurred in several of these instances, and 24 are marked as heavy frosts; the frost limit should therefore be raised to at least 44.5°."

During the 3d and 4th of the current August frost was quite general in Colorado, Minnesota, Iowa, Wisconsin, Michigan Indiana, and Ohio, although the minimum temperatures on those dates in Weather Bureau shelters were as high as 48° and 50° in northern Indiana, Ohio, and southern Michigan.

On the 27th at Saratoga, Wyo., and on the 22d, near Leeds, Mass., frost occurred, although in both cases the minimum air temperatures were as high as 47°.

The following table shows the dates of the occurrence of the first light and first heavy frost of the season at the respective stations:

Dates of first light and heavy frosts, August, 1894.

State and station.	First frost.	
	Light.	Heavy.
California.		
Greenville	17	.....
Colorado.		
Downing	3	.....
Gold Hill	3	.....
Connecticut.		
Thompson	22	.....
Voluntown	11	.....
Indiana.		
Angola	4	.....
Cambridge City	4	.....
Columbia City	3	.....
Delphi	4	.....
Huntington	4	.....
Kokomo	4	.....
Logansport	.....	4
Iowa.		
Audubon	4	.....
Cresco	3	.....
Fayette	3	.....
Forest City	3	.....
Logan	24	.....
Maine.		
Belfast	10	.....
Calais	10	.....
Massachusetts.		
Adams	17	.....
Amherst	22	.....
Brockton	20	.....
Concord	22	.....
East Templeton	11	.....
Groton	22	.....
Hadley	22	.....
Leeds	22	.....
Middleboro	22	.....
North Billerica	22	.....
Taunton	11	.....
Michigan.		
Alma	17	.....
Arbela	3	.....
Bronson	4	.....
Howell	5	.....
Lansing	3	.....
Lathrop	21	.....
Lodi	4	.....
Thornville	16	.....
Minnesota.		
Alexandria	3	.....
Fergus Falls	3	.....
Granite Falls	3	.....
Maple Plain	3	.....
Medford	3	.....
Rolling Green	3	.....
Rush City	3	.....
St. Charles	3	.....
St. Peter	3	.....
Sunrise City	3	.....
New Hampshire.		
Alstead	22	.....
Berlin Mills	17	.....
Bethlehem	11	.....
Brookline	22	.....
Concord	22	.....
Grafton	22	.....
Lancaster	22	.....
Littleton	22	.....
New Hampshire—Continued.		
Peterboro	22	.....
Stratford	27	.....
West Milan	11	27
New York.		
Angelica	11	.....
Hyndsville	27	.....
Malone	21	.....
South Canisteo	11	.....
North Dakota.		
McKinney	3	.....
Woodbridge	2	.....
Ohio.		
Annapolis	4	.....
Clifton	4	.....
Hedges	4	.....
Kenton	22	.....
Leipsic	4	.....
Montpelier	.....	4
Northwood	4	.....
Orangeville	5	.....
Warren	17	.....
Wauseon	4	.....
Weymouth	17	.....
Pennsylvania		
Cassandra	5	.....
Dyberry	10	.....
Lock Haven	12	.....
Shinglehouse	11	.....
Somerset	4	.....
Wellsboro	6	.....
Wilkesbarre	21	.....
Rhode Island.		
Kingston	22	.....
Pawtucket	21	.....
South Dakota.		
De Smet	2	.....
Vermont.		
Cornwall	26	.....
Hartland	22	.....
Northfield	.....	27
Norwich	22	.....
Strafford	10	.....
Vernon	22	.....
Wells	22	.....
West Virginia.		
Pleasant Hill	5	.....
Wisconsin.		
Antigo	21	.....
Black River Falls	5	.....
Crandon	3	.....
Florence	.....	20
Grantsburg	.....	2
Hillsboro	3	.....
Koepenick	20	.....
Milwaukee	3	.....
Neillsville	3	.....
Osceola	4	.....
Reedsburg	3	.....
Valley Junction	.....	3
Viroqua	3	.....
Weston	3	.....
West Salem	3	.....
Wyoming.		
Saratoga	.....	27

PRECIPITATION.

[*In inches and hundredths.*]

The distribution of precipitation for the month of August, 1894, as determined by reports from about 2,000 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III; the first of these also gives the average departures from the normal for each district, whereas the average departure for each State is given in Table XII.

NORMAL PRECIPITATION FOR AUGUST.

The normal precipitation for the month of August is less than 1 inch in the middle and northern plateau, middle and south Pacific regions; it is between 1 and 2 inches in the north Pacific and northern and southern slopes; from 2 to 3 inches usually falls over the southern plateau, middle slope, North Dakota, and the lower and upper Lake regions; from 3 to 4 inches in the upper Mississippi and the Missouri valleys, the Ohio Valley and Tennessee, and the west Gulf States; from 4 to 6 inches throughout the Atlantic and east Gulf States.

PRECIPITATION FOR CURRENT MONTH.

The precipitation for the current August was heaviest in the south Atlantic States, where it ranged from 3 inches in the interior mountainous regions up to 12 inches on the coast of South Carolina and 11 in southern Georgia. A number of cases of extreme local rainfalls, exceeding 13 inches, are reported. A region of heavy precipitation, viz, above 8 inches,

also occurs in southwestern Texas, and apparently still heavier rains fell on the Mexican side of the Rio Grande. The precipitation was less than 1 inch throughout the Pacific coast and Rocky Mountain regions and the greater part of the Missouri watershed, as also in Lower Michigan, constituting a continuance of the drought mentioned in the REVIEW for July.

CURRENT DEPARTURES FROM NORMAL PRECIPITATION.

The precipitation for August was in excess over a small portion of Tennessee, the south Atlantic and Gulf States, as also in Colorado and Mexico, but was deficient in nearly all other regions.

The principal departures from the normal at Weather Bureau stations were as follows:

Excesses.—Abilene, 5.2; San Antonio and Pensacola, 4.9; Charleston, 4.8; Corpus Christi, 4.1; Galveston, 4.0.

Deficits.—Jupiter and Topeka, 4.8; Leavenworth, 4.3; New Haven, 3.8; Columbia, Kans., 3.6; La Crosse, 3.4; Nantucket, 3.3; New York and Sandusky, 3.2; Baltimore and St. Paul, 3.1.

Considered by districts, the precipitation for August, 1894, when compared with the normal for the month, furnishes the departures given in Table I, as expressed in inches. By dividing those departures by the normal precipitation for August we obtain the following corresponding percentages (precipitation is in excess when the percentage of the normal exceeds 100):

Below the normal: New England, 52; middle Atlantic States, 71; Key West, 90; Ohio Valley and Tennessee, 77; lower Lake region, 20; upper Lake region, 44; North Dakota (extreme northwest), 52; upper Mississippi Valley, 40; Missouri Valley, 16; northern slope, 72; middle slope, 43; southern plateau, 42; northern plateau, 31; north Pacific, 21.

Normal: Middle plateau, 100; middle Pacific, 100; south Pacific, 100.

Above the normal: south Atlantic, 105; east Gulf States, 107; west Gulf States, 190; southern slope (Abilene), 427.

For certain voluntary stations of rather long periods of observation the normal and extreme monthly precipitations and the departures are shown in detail in Table X*b*, which is now placed among the meteorological tables instead of being inserted in the text as heretofore.

ACCUMULATED PRECIPITATION.

The total accumulated monthly departures from normal precipitation from the beginning of the year to the end of the current month are given in the second column of the following table; the third column gives the ratio of this current accumulated precipitation to its normal value:

Districts.	Accumulated departures.	Accumulated precipitation.	Districts.	Accumulated departures.	Accumulated precipitation.
	Inch.	*Per ct.*		*Inch.*	*Per ct.*
New England	−10.10	67	West Gulf	+ 1.20	104
Middle Atlantic	− 6.20	80	Southern slope (Abilene)	+ 4.00	122
South Atlantic	− 4.80	87	Middle plateau	+ 0.70	109
Key West	− 6.30	73	Northern plateau	+ 2.60	137
East Gulf	− 2.90	93	North Pacific	+ 9.50	128
Ohio Valley and Tennessee	− 6.90	80			
Lower Lake	− 4.50	81			
Upper Lake	− 1.70	92			
North Dakota (Ex. NW.)	− 0.70	95			
Upper Mississippi	− 9.50	63			
Missouri Valley	− 8.24	66			
Northern slope	− 1.10	90			
Middle slope	− 0.20	99			
Southern plateau	− 2.90	65			
Middle Pacific	− 2.10	89			
South Pacific	− 4.60	49			

DIURNAL VARIATION.

Table IV*b* gives the total precipitation for each hour of seventy-fifth meridian time, as deduced from self-registering gauges kept at about 43 regular stations of the Weather Bureau; of these 27 are float guages and 6 are weighing guages.

YEARS OF GREATEST PRECIPITATION FOR AUGUST.

The precipitation for the current month was the greatest on record for the month of August at regular Weather Bureau stations, as shown in the following table:

Station.	Current precipitation.		Previous maximum.	
	Amount.	Departure.	Amount.	Year.
Sault Ste. Marie, Mich	5.72	+ 2.0	4.11	1890
Titusville, Fla	5.33	+ 1.8	4.40	1888
Abilene, Tex	6.79	+ 5.2	4.08	1888
Palestine, Tex	5.45	+ 3.0	5.32	1882
Corpus Christi, Tex	7.65	+ 4.1	6.31	1891

YEARS OF LEAST PRECIPITATION FOR AUGUST.

The precipitation for the current month was the least on record for the month of August at regular Weather Bureau stations, as shown in the following table:

Station.	Current precipitation.		Previous minimum.	
	Amount.	Departure.	Amount.	Year.
Jupiter, Fla	1.54	−4.8	2.80	1892
Charlotte, N. C	3.03	−2.3	4.05	1888
Pittsburg, Pa	0.43	−3.0	0.88	1881
Erie, Pa	0.54	−2.8	0.98	1876
Sandusky, Ohio	0.23	−3.2	0.96	1881
Toledo, Ohio	0.60	−2.2	0.88	1881
Detroit, Mich	0.16	−2.8	0.19	1889
Port Huron, Mich	0.07	−2.5	0.14	1889
Milwaukee, Wis	0.29	−2.6	0.76	1889
Green Bay, Wis	1.34	−1.7	1.36	1889
St. Paul, Minn	0.36	−2.1	1.22	1883
La Crosse, Wis	0.35	−3.4	1.30	1893
Keokuk, Iowa	0.51	−2.5	0.54	1873
Laramie, Wyo	0.11	−0.6	0.25	1882
Valentine, Nebr	0.33	−1.1	0.34	1889
Omaha, Nebr	0.36	−3.5	0.93	1882
Kansas City, Mo	0.13	−4.3	1.55	1892
Topeka, Kans	0.42	−4.8	2.31	1891
Columbia, Kans	0.44	−3.6	0.69	1891
Dodge City, Kans	0.15	−3.0	1.03	1876

EXCESSIVE PRECIPITATION.

The following tables for August, 1894, show, by States, the number of stations reporting total precipitation to equal or exceed 10.00 inches during this month, 2.50 in 24 hours, and 1.00 in 1 hour:

Monthly precipitation to equal or exceed 10.00 *inches.*

State.	Number of stations.	State.	Number of stations.
Georgia	10	North Carolina	7
South Carolina	9	Florida	5
Alabama	7	Texas	2
Louisiana	7	Arkansas	1

Daily precipitation to equal or exceed 2.50 *in* 24 *hours.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Texas	26	3-4, 4, 4-5, 5, 5-6, 6, 6-7, 8, 9, 10, 14, 14-15, 21, 23, 24, 24-25, 29-30, 30, 30-31.	Georgia	11	3-4, 5, 5-6, 17, 17-18, 18-19, 24.
			Mississippi	11	8, 13, 21-22, 22, 22-23, 23-24.
South Carolina	18	4, 4-5, 4-6, 5, 5-6, 6, 11, 20, 26-27, 27, 27-28.	Florida	6	2, 3-4, 7-8, 29, 31.
			Tennessee	4	17, 22-23, 23-24, 25-26.
Alabama	14	1-2, 2, 3, 17-18, 22, 22-23, 24, 28-29.	Minnesota	3	9-10, 13.
			Missouri	3	10, 20-21.
Louisiana	13	8-9, 9, 9-10, 10, 12-13, 13, 14, 16-17, 18, 21, 26.	Virginia	3	3-4, 11-12, 18.
			Ohio	2	1-2.
North Carolina	13	3, 3-4, 3-5, 4-5, 4-6, 5, 5-6, 6, 11-12, 26, 26-27.	South Dakota	2	13, 15.
			Arizona	1	21-22, 23-24.
Arkansas	12	1-2, 2, 11, 11-12, 12, 15, 16, 17, 20-21, 26, 30.	Delaware	1	18.
			Iowa	1	13.
			Kentucky	1	13.
			Maine	1	3.
			New Jersey	1	3-4.
			Pennsylvania	1	2-3.

Hourly precipitation to equal or exceed 1.00 *inch.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Louisiana	12	1, 3, 11, 13, 16, 18, 21, 26, 29, 30.	South Dakota	3	9, 13, 15.
			Virginia	3	10, 13, 15.
Ohio	10	2, 11, 12, 18, 19, 25.	Kentucky	2	10, 13.
Georgia	9	1, 2, 3, 8, 12, 17, 17–18, 18, 19, 21, 23, 24, 27, 31.	Mississippi	2	13, 30.
			New Jersey	2	15, 18.
			Pennsylvania	2	2.
Florida	7	4, 9, 10, 22, 24, 27, 28, 29, 31.	Connecticut	1	3.
			Illinois	1	26.
South Carolina	7	11, 13, 15, 24, 27, 30.	Indiana	1	25.
Alabama	6	3, 12, 16, 17, 19.	Kansas	1	21.
Arkansas	6	1, 11, 12, 26.	Maine	1	3.
Missouri	6	1, 10, 17, 25.	Maryland	1	15.
North Carolina	6	3, 4, 11, 15, 27.	New Mexico	1	10.
Texas	6	1, 2, 3, 10, 20, 31.	New York	1	15.
Tennessee	4	17, 25.	West Virginia	1	13.
Arizona	3	22, 30.	Wisconsin	1	24.
Massachusetts	3	3, 20.			

Excessive precipitation, by stations, for August, 1894.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Carrollton	10.43					
Clanton		3.98	22–23			
Cordova		3.57	17–18			
Decatur *b*				1.85	1 50	12
Eufaula *a*				1.43	1 05	3
Eufaula *c*				1.30	1 05	3
Florence *a*	10.36			2.10	2 05	16
Florence *b*	10.60	2.66	3			
Greensboro		3.00	22			
Marion	12.47	7.00	22			
Newbern	12.00	4.80	22			
Opelika		3.55	22–23			
Selma	13.13	7.10	22			
Talladega		2.60	24	1.70	1 00	17
Tallassee Falls		5.09	22–23			
Tuscumbia		2.88	2			
Union		2.60	22			
Union Springs		4.96	22–23			
Wilsonville	17.35	3.18	1–2	1.30	0 30	19
Do		5.25	22–23			
Do		2.50	28–29			
Arizona.						
Bisbee		2.59	21–22	2.15	1 00	22
Do		3.10	23–24			
Red Rock				2.00	1 30	30
San Carlos				1.02	0 50	22
Arkansas.						
Bee Branch		3.45	1–2	2.00	2 00	1
Brinkley		5.30	11–12			
Cassville		2.57	20–21			
Corning				1.95	0 30	1
Dardanelle		3.50	12			
Fort Smith				1.41	0 40	11
Hamburg		2.64	15			
Helena *a*		4.80	12	4.80	4 00	12
Helena *b*		4.95	11–12			
Hindsville		3.05	17			
Kirby				1.10	1 00	26
Mount Ida		2.90	11			
Mount Nebo		3.38	11			
New Gascony		3.21	16			
Pocahontas				1.55	1 30	1
Prescott	18.01	3.70	2			
Do		3.10	12			
Do		3.99	26			
Do		2.50	30			
Connecticut.						
New London				1.53	1 00	3
Delaware.						
Milford		2.78	18			
Florida.						
Clermont	10.64			2.00	0 45	24
Do		3.10	31	3.00	1 15	31
Homeland	10.13	3.12	29			
Jacksonville				1.25	1 00	10
Do				1.48	1 00	24
Key West		2.74	3–4	1.13	1 00	4
Kissimmee				1.64	0 30	22
Merritts Island		2.58	2			
Orange Park	11.20			2.10	1 55	9
Do				1.00	0 45	29
Orlando				2.00	0 30	28
Pensacola	13.67	5.95	7–8			
Plant City				1.75	1 00	27
Tarpon Springs	10.36	2.64	31			
Georgia.						
Alapaha	11.08	4.25	5–6			
Albany	10.92	6.02	5–6			
Canton				1.88	1 15	1
Do				1.54	1 20	3
Cordele		3.65	5–6	1.15	0 30	19
Do				1.15	1 00	31

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Georgia—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Eastman	11.17	4.89	5–6			
Fleming	11.45	2.70	17			
Fort Gaines				1.03	0 40	2
Do				1.22	1 00	23
Hawkinsville	10.31	3.79	5			
Macon *b*		2.70	5–6			
Millen	10.48					
Monticello	10.30	5.50	17–18			
Poulan	10.55	3.39	5–6			
Quitman				1.10	0 35	8
Reynolds				1.68	1 00	17–18
Rome				1.52	1 00	18
Do				1.80	1 00	21
Savannah				1.56	1 00	17
Way Cross	11.54	4.06	18–19	1.55	1 10	27
Waynesboro	13.70	3.47	3–4	1.60	0 50	12
Do		2.65	24	2.25	0 45	24
Illinois.						
Palestine				2.15	2 00	26
Indiana.						
Mount Vernon				1.19	1 00	25
Iowa.						
Sac City		2.50	13			
Kansas.						
Olathe				1.00	1 00	21
Kentucky.						
Harrodsburg						
Hendricks		2.90	13	2.90	1 00	13
Princeton				1.36	0 40	10
Louisiana.						
Cameron	11.90	2.75	13			
Coushatta *a*		3.27	16–17			
Covington		2.57	12–13			
Davis				2.07	1 40	16
Do		3.25	18	3.25	1 30	18
Emilie	10.52			1.99	1 25	3
Franklin	11.11			1.12	1 05	1
Do		5.23	14	1.00	0 40	11
Girard		2.63	26			
Lafayette				1.18	0 20	3
Lake Charles	10.50			2.00	0 30	29
Lawrence		5.27	9			
Liberty Hill				2.10	1 05	21
Many	12.46	2.85	21			
Monroe				1.15	0 25	26
New Orleans		2.58	13	1.70	1 00	13
Do				1.13	0 50	18
Oberlin				2.00	1 30	18
Paincourtville				1.40	1 00	16
Port Eads		4.31	8–9			
Rayne		2.55	9–10			
Schriever				1.94	1 45	30
Shell Beach	10.33					
Sugar Ex. Station		4.06	10			
Thibodeaux				1.00	1 00	29
West End	10.03	3.26	13			
Maine.						
Belfast		3.03	3			
Portland				1.08	1 00	3
Maryland.						
Chestertown				1.85	0 30	15
Massachusetts.						
Boston (W. B.)				1.68	1 00	20
Roxbury				1.25	0 50	20
Westboro				3.00	2 00	3
Do				2.00	1 00	20
Minnesota.						
Airlie		2.74	13			
Bird Island		2.50	9–10			
Campbell				1.57	1 30	10
Do				1.06	1 00	22
Milan		3.24	9–10			
Mississippi.						
Aberdeen		3.75	23–24			
Biloxi		3.05	22			
Clarksdale		5.07	13	5.07	5 00	13
Columbus		3.18	22–23			
Hattiesburg		3.20	13			
Jackson		4.80	21–22			
Louisville		2.51	22			
Macon		3.00	22–23			
Moss Point		3.00	8			
Waynesboro *a*		3.90	13			
Waynesboro *b*		3.15	13			
Woodville				2.24	1 10	30
Missouri.						
Birch Tree				2.03	2 00	1
Fox Creek				1.18	1 00	1
Half Way		2.50	20–21			
Nevada		3.07	20–21			
New Madrid				1.59	0 20	25
Oakfield				1.21	0 57	1
Panacea				1.13	1 00	17
Whiteside		2.70	10	2.70	1 00	10
New Jersey.						
Beach Haven		5.56	3–4			
Egg Harbor City				2.20	2 00	18
River Vale				1.72	1 30	15
New Mexico.						
Eddy				1.78	1 30	10

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
New York.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
West Point	.....	.....	.....	1.10	1 05	15
North Carolina.						
Auburn	.....	2.96	3	.....	.....	.....
Bakersville	.....	2.57	11-12	.....	.....	.....
Charlotte	.....	.....	.....	1.14	0 50	11
Fair Bluff	.....	5.60	4-6	.....	.....	.....
Falkland	19.25	13.55	3-5	.....	.....	.....
Fayetteville	13.45	10.25	4-6	.....	.....	.....
Goldsboro	.....	4.40	5-6	.....	.....	.....
Greenville	11.40	.....	.....	.....	.....	.....
Hatteras	.....	2.52	4-5	1.87	1 00	27
Horse Cove	.....	.....	.....	1.65	0 35	4
Lumberton	.....	4.47	4-5	.....	.....	.....
Mocksville	.....	.....	.....	2.31	1 56	3
Pantego	14.99	5.19	4-5	1.60	1 30	3
Do	.....	3.00	26	.....	.....	.....
Selma	13.71	8.20	3-4	.....	.....	.....
Sloan	11.54	2.51	5	2.19	1 10	15
Southport	.....	3.46	5	.....	.....	.....
Tarboro	13.32	2.98	6	.....	.....	.....
Do	.....	4.48	26-27	.....	.....	.....
Ohio.						
Bangorville	.....	.....	.....	1.16	1 00	18
Cincinnati	.....	.....	.....	1.17	1 00	11
Coalton	.....	2.75	1-2	.....	.....	.....
Dupont	.....	.....	.....	1.08	1 00	18
Frankfort	.....	3.25	1-2	.....	.....	.....
McConnellsville	.....	.....	.....	2.10	2 00	19
North Lewisburg	.....	.....	.....	2.00	2 00	2
Northwood	.....	.....	.....	1.26	1 08	25
Pataskala	.....	.....	.....	1.03	0 30	12
Portsmouth *a*	.....	.....	.....	1.36	1 00	12
Vickery	.....	.....	.....	1.33	0 45	12
Waverly	.....	.....	.....	1.38	1 16	2
Pennsylvania.						
Harrisburg	.....	2.51	2-3	1.20	1 00	2
Smethport	.....	.....	.....	1.25	0 30	2
South Carolina.						
Allendale	.....	4.26	4-5	.....	.....	.....
Batesburg	.....	2.85	4-5	.....	.....	.....
Blenheim	12.24	6.22	4-5	.....	.....	.....
Do	.....	3.40	11	.....	.....	.....
Branchville	.....	.....	.....	1.11	1 00	24
Central	.....	2.99	27	.....	.....	.....
Cheraw *a*	.....	2.57	4	.....	.....	.....
Cheraw *b*	.....	4.55	4-5	.....	.....	.....
Charleston	11.12	.....	.....	.....	.....	.....
Effingham	11.14	5.77	4-6	.....	.....	.....
Flint Hill	.....	.....	.....	2.15	2 00	11
Florence	11.89	8.01	4-6	.....	.....	.....
Greenwood	.....	2.85	27-28	.....	.....	.....
Kingstree *a*	.....	2.94	4-5	.....	.....	.....
Little Mountain	.....	4.00	4-5	.....	.....	.....
McCormick	.....	2.60	4	.....	.....	.....
Port Royal	10.97	2.83	20	.....	.....	.....
Do	.....	3.50	27	3.50	2 00	27
St. Georges	10.43	2.96	5	1.30	0 30	30
St. Matthews	10.27	3.07	5-6	.....	.....	.....
Do	.....	3.35	26-27	1.35	1 15	27
Santuck	.....	.....	.....	1.13	0 50	15
Society Hill	12.26	7.17	4-5	.....	.....	.....
Statesburg	11.85	3.75	4-5	.....	.....	.....
Watts	.....	2.84	6	1.45	1 00	13
South Dakota.						
Alexandria	.....	3.10	15	2.65	0 40	15
Cross	.....	.....	.....	2.18	1 40	9
Flandreau	.....	2.85	13	2.85	1 35	13
Tennessee.						
Carthage	.....	4.10	17	4.10	2 40	17
Franklin	.....	.....	.....	1.80	1 30	17
Lynnville	.....	4.14	23-24	.....	.....	.....
Memphis	.....	.....	.....	1.40	0 40	17
Rugby	.....	3.76	25-26	2.98	2 00	25
Waynesboro	.....	2.90	22-23	.....	.....	.....
Texas.						
Abilene	.....	.....	.....	1.15	0 40	1
Do	.....	.....	.....	1.10	0 30	3
Alice	.....	4.00	6	.....	.....	.....
Beaumont	.....	3.04	14	.....	.....	.....
Do	.....	3.08	21	.....	.....	.....
Bellville	.....	4.00	4	.....	.....	.....
Boerne	.....	3.86	29-30	.....	.....	.....
Brazoria	11.50	3.94	6-7	.....	.....	.....
Brenham	.....	3.31	4-5	.....	.....	.....
Camp Eagle Pass	.....	4.72	30-31	.....	.....	.....
Coleman	.....	2.67	10	.....	.....	.....
Corpus Christi	.....	5.13	5-6	.....	.....	.....
Dallas	.....	3.36	3-4	.....	.....	.....
Devine	.....	2.56	24	.....	.....	.....
Eastland	.....	2.50	9	.....	.....	.....
Estelle	.....	.....	.....	1.52	1 30	20
Flower Bluff	.....	4.45	6-7	.....	.....	.....
Do	.....	3.25	24-25	.....	.....	.....
Fort Clark	.....	3.66	3-4	.....	.....	.....
Fredericksburg	.....	2.51	29-30	.....	.....	.....
Galveston	.....	3.56	14-15	.....	.....	.....
Hallettsville	.....	4.47	6	.....	.....	.....
Jefferson	.....	.....	.....	1.75	1 00	10
Lampasas	.....	.....	.....	1.25	1 00	3
Leaky	.....	4.10	30	.....	.....	.....
Llano	.....	2.90	23	.....	.....	.....

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Texas—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Longview	.....	2.94	4	.....	.....	.....
Luling	.....	3.09	5	.....	.....	.....
New Braunfels	.....	.....	.....	1.66	0 55	31
Orange	11.64	.....	.....	.....	.....	.....
Roby	.....	3.76	10	.....	.....	.....
Rock Springs	.....	2.70	29-30	.....	.....	.....
San Antonio (W. B.)	.....	2.55	8	.....	.....	.....
Silver Falls	.....	.....	.....	1.02	1 00	2
Waco	.....	4.75	29-30	.....	.....	.....
Weatherford	.....	4.76	3-4	.....	.....	.....
Virginia.						
Birdsnest	.....	2.75	11-12	.....	.....	.....
Hampton	.....	2.60	18	.....	.....	.....
Norfolk	.....	.....	.....	1.00	1 00	13
Spottsville	.....	2.63	3-4	.....	.....	.....
Warrenton	.....	.....	.....	1.12	0 45	15
Whittles Depot	.....	.....	.....	1.27	0 30	10
West Virginia.						
Beverly	.....	.....	.....	1.20	0 30	13
Wisconsin.						
City Point	.....	.....	.....	1.06	1 00	24

Excessive precipitation in July, 1894, received too late for publication.

Florida.						
St. Francis Barracks	.....	2.60	10	.....	.....	.....
Kentucky.						
Alpha	.....	.....	.....	1.00	0 20	15
Catlettsburg	.....	.....	.....	1.04	0 25	16
Massachusetts.						
Springfield Armory	.....	.....	.....	1.03	0 57	21

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several States and Territories for August during the last twenty-four years:

Frequency of excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Florida	21	Wisconsin	3
North Carolina	19	Kentucky	3
Georgia	18	Mississippi	3
South Carolina	12	Arkansas	3
Alabama	12	Delaware	2
New York	10	Maine	2
Virginia	9	West Virginia	2
Texas	9	Arizona	1
Louisiana	9	Colorado	1
Kansas	7	North and South Dakota	1
New Hampshire	7	District of Columbia	1
New Jersey	7	Minnesota	1
Illinois	6	New Mexico	1
Indiana	6	Vermont	1
Iowa	6	California	1
Massachusetts	6	Indian Territory	1
Connecticut	5	Idaho	0
Ohio	5	Montana	0
Pennsylvania	5	Nevada	0
Missouri	5	Oregon	0
Tennessee	5	Rhode Island	0
Maryland	4	Utah	0
Michigan	3	Washington	0
Nebraska	3	Wyoming	0

Frequency of excessive daily precipitation.

Georgia	23	Arkansas	14
Texas	22	Louisiana	14
Florida	21	Virginia	14
North Carolina	21	Connecticut	13
South Carolina	20	Minnesota	13
Pennsylvania	18	New Jersey	13
Iowa	17	Michigan	12
Missouri	17	Nebraska	11
Tennessee	17	Indiana	10
New York	16	Maryland	9
Massachusetts	15	New Hampshire	9
Illinois	15	Indian Territory	8
Mississippi	15	West Virginia	7
Alabama	15	Arizona	7
Ohio	15	Delaware	6
Kansas	14	Kentucky	6
Wisconsin	14	Rhode Island	4
North and South Dakota	14	Vermont	4

Frequency of excessive daily precipitation—Continued.

State.	No. years noted.	State.	No. years noted.
Maine	4	Idaho	0
Montana	2	Nevada	0
Colorado	2	Oregon	0
California	1	Utah	0
New Mexico	1	Washington	0
District of Columbia	0	Wyoming	0

Frequency of excessive hourly precipitation.

Texas	19	Alabama	7
Florida	17	Kentucky	6
Georgia	17	Massachusetts	6
Tennessee	16	Colorado	5
Pennsylvania	15	New Hampshire	5
Kansas	15	Wisconsin	5
Ohio	15	New Mexico	5
North Carolina	14	Connecticut	4
South Carolina	13	Minnesota	4
Virginia	13	Maine	3
Iowa	12	Indian Territory	3
Michigan	11	West Virginia	3
Nebraska	11	Montana	2
North and South Dakota	11	Rhode Island	2
Illinois	11	Delaware	2
Indiana	10	District of Columbia	1
New York	10	Vermont	1
Mississippi	10	California	1
New Jersey	10	Washington	1
Maryland	9	Idaho	0
Louisiana	9	Nevada	0
Arkansas	8	Oregon	0
Missouri	8	Utah	0
Arizona	7	Wyoming	0

MAXIMUM RAINFALL FROM SELF-REGISTERING GAUGES.

The following table gives the heaviest rainfall during August, 1894, for periods of 5, 10, and 60 minutes, as re-recorded on self-registering rain gauges at regular stations of the Weather Bureau. This record refers strictly to rainfall. About 37 stations are furnished with self-registering-float-rain gauges and 6 with the self-registering-weighing-rain-and-snow gauge. The float gauge does not record snowfall, and both forms are liable to be interrupted by snow and ice:

Maximum rainfall in one hour or less.

Station.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Atlanta, Ga.*	0.23	28	0.31	28	0.53	24
Baltimore, Md.	0.05	19	0.06	19	0.22	19
Bismarck, N. Dak.	0.02	7, 13	0.04	7, 13	0.13	7
Boston, Mass.	0.56	20	0.83	20	1.68	20
Buffalo, N. Y.	0.12	2	0.18	2	0.20	2
Cincinnati, Ohio	0.38	11	0.70	11	1.03	11
Chicago, Ill.	0.16	10	0.16	10	0.24	10
Cleveland, Ohio	0.20	1	0.21	1, 19	0.31	19
Denver, Colo.	0.29	2	0.50	2	0.76	2
Detroit, Mich.	0.03	9	0.05	9	0.08	9
Dodge City, Kans.	0.01	20, 24	0.02	20, 24	0.05	20
Duluth, Minn.	0.27	22	0.32	22	0.42	22
Eastport, Me.	0.12	20	0.21	20	0.32	20
Galveston, Tex.	0.22	21	0.35	21	0.80	14
Indianapolis, Ind.	0.25	10	0.47	10	0.93	10
Jacksonville, Fla.	0.45	24	0.70	24	1.48	24
Jupiter, Fla.	0.20	21	0.25	21	0.45	21
Kansas City, Mo.	0.01	20	0.01	20	0.05	21
Key West, Fla.	0.45	4	0.80	4	1.13	4
Marquette, Mich.	0.40	28	0.55	28	0.80	28
Memphis, Tenn.	0.30	23	0.40	17	1.40	17
Milwaukee, Wis.	0.30	14, 20	0.05	14, 20	0.11	14
Nantucket, Mass.	0.06	4	0.08	4	0.19	4
Nashville, Tenn.	0.38	25	0.45	25	0.75	17
New Orleans, La.	0.32					
New York, N. Y.	0.25	3	0.46	3	0.69	3
Norfolk, Va.	0.06	12, 13	0.45	13	1.00	13
Omaha, Nebr.	0.06	12	0.09	12	0.11	12
Philadelphia, Pa.	0.25	2	0.45	2	0.69	2
Pittsburg, Pa.	0.10	19	0.10	19	0.15	19, 20
Portland, Me.	0.18	3	0.33	3	1.08	3
Portland, Oreg. †						
Rochester, N. Y.	0.10	29	0.15	29	0.25	29
St. Louis, Mo.	0.15	1	0.25	1	0.57	1
St. Paul, Minn.	0.08	11	0.10	11	0.18	11
Salt Lake City, Utah	0.06	31	0.08	31	0.23	31
San Diego, Cal. †						
San Francisco, Cal. †						
Savannah, Ga.	0.33	17	0.62	17	1.56	17
Seattle, Wash. †						
Vicksburg, Miss.	0.18	22	0.33	28	0.45	22
Washington, D. C.	0.14	26	0.25	26	0.64	26
Wilmington, N. C.	0.35	5	0.52	5	0.78	5

*Record incomplete. † Less than 0.05 in 1 hour.

EXCEPTIONAL PRECIPITATION.

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for August, by any station, regular or voluntary, and in any year since 1871:

Exceptional monthly precipitation.

Station and state.	Amt.	Year.	Station and state.	Amt.	Year.
	Inches.			*Inches.*	
Fort Barrancas, Fla	30.73	1878	Charleston, Ill.	23.04	1882
Asheville, N. C	28.65	1887	New Smyrna, Fla	23.00	1871
Ellsworth, N. C.	28.33	1880	New Orleans, La.	22.74	1888
Fort Barrancas, Fla	25.07	1879	Tarboro, N. C	22.73	1887
Hardeeville, S. C	24.67	1893	St. Augustine, Fla	21.50	1871
Maurepas, La.	23.44	1888	Fairview, Fla	21.35	1871
Newport, Fla	23.25	1872	St. Georges, S. C.*	20.45	1893

*Estimated, gauge blown down.

Exceptional daily precipitation.

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			*Inches.*	
Falkland, N. C.	13.55	3-5, 1894	Pinopolis, S. C.	6.00	27-28, 1893
Manning, S. C.	13.22	27-28, 1893	Hazlehurst, Miss	6.00	27, 1890
Connors, S. C	12.40	27-28, 1893	Phillips, Wis	6.00	8, 1890
Campo, Cal.*	11.50	12, 1891	Pensacola, Fla	5.95	7-8, 1894
Griffin, Ga	10.38	8, 1883	Hampton, S. C	5.95	27-28, 1893
Fayetteville, N. C	10.25	4-6, 1894	Clarksville, Tenn.	5.90	20, 1891
St. Georges, S. C.†	10.15	26-27, 1893	Hamburg, S. C	5.81	12, 1893
Granbury, Tex.	10.15	26, 1888	Table Rock, Nebr.	5.81	14-15, 1893
Fort Barrancas, Fla.	9.75	29, 1878	Columbia, S. C.	5.75	28, 1890
Hatteras, N. C	9.14	23, 1880	Batesburg, S. C	5.70	27-28, 1893
Tecumseh, Nebr.	9.00	12, 1889	Yorkville, S. C.	5.68	27-28, 1893
Ellsworth, N. C.	9.00	4, 1880	Darien, Ga	5.67	27-28, 1893
New Orleans, La.	8.90	20, 1888	Savannah, Ga	5.61	27-28, 1893
Mandeville, La	8.54	8, 1888	Clarinda, Iowa	5.60	14-15, 1893
Cape May, N. J	8.46	18, 1879	Tillers Ferry, S. C.b	5.59	27-28, 1893
Wateree, S. C	8.45	27-28, 1893	Beach Haven, N. J.	5.56	3-4, 1894
Riddleton, Tenn	8.35	3, 1893	Birdsnest, Va.	5.55	21-22, 1892
Stephens, S. C	8.28	27-28, 1893	Camp Eagle Pass, Tex.	5.50	2, 1891
Selma, N. C	8.20	3-4, 1894	Monticello, Ga.	5.50	17-18, 1894
Kittyhawk, N. C.	8.14	15, 1883	Sugar Ex. Station, La.	5.48	15, 1892
Vesper, Kans	8.10	19, 1890	Washington, Ga	5.40	26, 1891
Florence, S. C.	8.01	4-6, 1894	Highlands, N. C	5.34	13-14, 1893
Grantsburg, Wis.	7.75	19-20, 1889	Tillers Ferry, S. C.a	5.33	2-3, 1893
Johnstown, Va	7.70	18, 1879	Brinkley, Ark	5.30	11-12, 1894
Marshall, Mo	7.48	18-19, 1891	Lawrence, La	5.27	9, 1894
Belvidere, N. J	7.39	19-20, 1893	Wilsonville, Ala	5.25	22-23, 1894
Society Hill, S. C	7.17	4-5, 1894	Franklin, La.	5.23	14, 1894
Selma, S. C.	7.10	22, 1894	Madison B'ks, N. Y.	5.25	28-29, 1893
Davis Bridge, S. C	7.02	27-28, 1893	Beatrice, Nebr	5.22	14-15, 1893
Central City, Ky.	7.02	22, 1891	Ashland, Nebr	5.21	14-15, 1893
Marion, Ala.	7.00	22, 1894	Brewer Mine, S. C	5.20	28, 1893
Trial, S. C.	6.96	27-28, 1893	Martins, S. C.	5.20	27-28, 1893
Blackville, S. C	6.86	27-28, 1893	Pantego, S. C.	5.19	4-5, 1894
Statesburg, S. C.	6.74	27-28, 1893	Deckertown, N. J.	5.17	23-24, 1893
Union Point, Ga	6.60	26-27, 1891	Corpus Christi, Tex	5.13	5-6, 1894
Carson, Iowa	6.50	9, 1889	Fort Smith, Ark	5.10	19-20, 1890
Effingham, S. C	6.45	27-28, 1893	Buckhannon, W. Va	5.10	28, 1893
Hardeeville, S. C.	6.40	27-28, 1893	Clarksdale, Miss	5.07	13, 1894
North Hammond, N. Y.	6.40	26, 1892	Cheraw, S. C	5.06	23-24, 1893
Laredo, Tex	6.38	9, 1893	Lillington, N. C.	5.02	22-23, 1891
Chicago, Ill.	6.33	2-3, 1885	Thomasville, Ga.	5.02	15-16, 1892
Blenheim, S. C.	6.22	4-5, 1894	State Farm, Nebr	5.01	14-15, 1893
Trenton, S. C	6.07	27-28, 1893	Rea, Mo.	5.00	14-15, 1893
Albany, Ga.	6.02	5-6, 1894			

*Cloudburst; rainfall not all measured.
† Estimated; gauge blown down.

Exceptional precipitation for one hour or less.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Boston, Mass	0.56	0 05	20, 1894
Jupiter, Fla	0.50	0 05	21, 1893
Omaha, Nebr.	0.50	0 05	14, 1893
St. Paul, Minn	0.50	0 05	23, 1893
Boston, Mass	0.50	0 05	12, 1892
Savannah, Ga	0.50	0 05	28, 1891
Atlanta, Ga	0.45	0 05	1, 1892
Indianapolis, Ind	0.45	0 05	19, 1891
Jacksonville, Fla	0.45	0 05	19, 1892
Do	0.45	0 05	24, 1894
Key West, Fla.	0.45	0 05	4, 1894
Wilmington, N. C.	0.43	0 05	18, 1887
New York, N. Y.	0.43	0 05	18, 1887
Galveston, Tex	0.40	0 05	4, 1891
Kansas City, Mo.	0.40	0 05	15, 1891
Eastport, Me.	0.40	0 05	12, 1891
St. Louis, Mo.	0.40	0 05	7, 1892
Marquette, Mich	0.40	0 05	28, 1894
Tampa, Fla	0.40	0 05	9, 1892
Galveston, Tex	0.39	0 05	22, 1891
Norfolk, Va.	0.38	0 05	31, 1892
Cincinnati, Ohio	0.38	0 05	11, 1894

Exceptional precipitation for one hour or less—Continued.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Savannah, Ga.*	0.37	0 05	20, 1893
Boston, Mass	0.37	0 05	6, 1893
Philadelphia, Pa	0.36	0 05	28, 1891
Cleveland, Ohio	0.35	0 05	19, 1892
Dodge City, Kans	0.35	0 05	23, 1892
New York, N. Y.*	0.35	0 05	19, 1893
Jupiter, Fla	0.35	0 05	2, 1890
St. Louis, Mo	0.35	0 05	11, 1891
St. Paul, Minn	0.35	0 05	20, 1891
Wilmington, N. C	0.35	0 05	5, 1894
Atlanta, Ga	0.35	0 05	18, 1891
Dodge City, Kans	0.34	0 05	12, 1891
Savannah, Ga	0.33	0 05	10, 1892
Do	0.33	0 05	17, 1894
New York, N. Y	0.32	0 05	3, 1894
Memphis, Tenn	0.32	0 05	26, 1890
Norfolk, Va	0.32	0 05	28, 1893
Galveston, Tex	0.31	0 05	9, 1892
Bismarck, N. Dak	0.30	0 05	27, 1892
Buffalo, N. Y	0.30	0 05	19, 1892
Jupiter, Fla	0.30	0 05	14, 1892
New York, N. Y	0.30	0 05	23, 1891
Memphis, Tenn	0.30	0 05	25, 1894
Nashville, Tenn	0.30	0 05	25, 1894
Buffalo, N. Y	0.30	0 05	28, 1893
Washington, D. C	0.30	0 05	1, 1890
Norfolk, Va	0.30	0 05	26, 1891
Galveston, Tex	0.29	0 05	25, 1893
Denver, Colo	0.29	0 05	2, 1894
Duluth, Minn	0.27	0 05	22, 1894
Eastport, Me	0.27	0 05	5, 1892
Indianapolis, Ind	0.25	0 05	19, 1892
Baltimore, Md	0.25	0 05	29, 1893
Jacksonville, Fla	0.25	0 05	6, 1893
Do	0.25	0 05	9, 1893
Wilmington, N. C	0.25	0 05	30, 1892
Indianapolis, Ind	0.25	0 05	10, 1894
Norfolk, Va	0.25	0 05	12, 1894
Do	0.25	0 05	13, 1894
Philadelphia, Pa	0.25	0 05	2, 1894
Jupiter, Fla	0.95	0 10	21, 1893
Boston, Mass	0.83	0 10	20, 1894
Key West, Fla	0.80	0 10	4, 1894
Boston, Mass	0.80	0 10	12, 1892
Jacksonville, Fla	0.80	0 10	31, 1892
Tampa, Fla	0.80	0 10	9, 1892
Omaha, Nebr	0.80	0 10	14, 1893
Galveston, Tex	0.75	0 10	4, 1890
Cincinnati, Ohio	0.70	0 10	11, 1894
Boston, Mass	0.70	0 10	6, 1893
Jacksonville, Fla	0.70	0 10	24, 1894
St. Paul, Minn	0.70	0 10	23, 1893
Atlanta, Ga	0.65	0 10	1, 1892
Savannah, Ga	0.62	0 10	17, 1894
Dodge City, Kans	0.60	0 10	9, 1892
Key West, Fla	0.60	0 10	30, 1891
New York, N. Y	0.59	0 10	4, 1888
Savannah, Ga.*	0.56	0 10	14, 1893
Norfolk, Va	0.57	0 10	31, 1892
Bismarck, N. Dak	0.56	0 10	27, 1892
Cleveland, Ohio	0.56	0 10	19, 1892
Marquette, Mich	0.55	0 10	28, 1894
Wilmington, N. C	0.52	0 10	5, 1894
St. Louis, Mo	0.51	0 10	7, 1892
Jupiter, Fla	0.50	0 10	14, 1892
New York, N. Y.*	0.50	0 10	19, 1893
Salisbury, N. C	0.50	0 10	13, 1888
Denver, Colo	0.50	0 10	2, 1894
Franklin Furnace, N. J	0.99	0 15	19, 1893
Charleston, S. C	1.41	0 18	9, 1890
Lead Hill, Ark	1.00	0 18	2, 1882
Jupiter, Fla	2.12	0 20	21, 1893
New Madrid, Mo	1.59	0 20	25, 1894
Trenton, S. C	1.42	0 20	18, 1893
Brooksville, Fla	1.40	0 20	1, 1893
Escanaba, Mich	1.27	0 20	11, 1877
Marksville, La	1.25	0 20	27, 1892
Albany, N. Y	1.20	0 20	2, 1878
Lafayette, La	1.18	0 20	3, 1894
Fox Creek, Mo	1.15	0 20	25, 1893
Glenville, W. Va	1.14	0 20	12, 1892
Nashville, Tenn	1.10	0 20	17, 1891
Emporium, Pa	1.05	0 20	5, 1893
Parkersburg, W. Va	1.01	0 20	1, 1890
Mossing Ford, Va	1.00	0 20	2, 1890
Abilene, Tex	1.00	0 20	29, 1892
Louisville, Ky	1.26	0 23	20, 1878
Hardin, Colo	1.52	0 24	13, 1890
Galveston, Tex	1.55	0 25	17, 1871
Ithaca, N. Y	1.47	0 25	4, 1892
Colorado Springs, Colo	2.75	0 30	14, 1890
Mesquite, Tex	2.50	0 30	10, 1875
Jupiter, Fla	2.35	0 30	20, 1893
Stella, Tex	2.05	0 30	4, 1893
Lebo, Kans	2.01	0 30	22, 1892
Lake Charles, La	2.00	0 30	29, 1894
Orlando, Fla	2.00	0 30	28, 1894
Somerville, N. J	2.00	0 30	19, 1893
Wellsboro, Pa	1.95	0 30	21, 1885
Corning, Ark	1.95	0 30	1, 1894
Montevideo, Minn	1.95	0 30	19, 1893
Vevay, Ind	1.90	0 30	13, 1879
Grantsburg, Wis	1.88	0 30	7, 1889
Chestertown, Md	1.85	0 30	15, 1894
Manistee, Mich	1.67	0 30	8, 1892

Exceptional precipitation for one hour or less—Continued.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Kissimmee, Fla	1.64	0 30	22, 1894
Emile, La	1.62	0 30	7, 1893
Queensbury, N. Y	1.56	0 30	14, 1890
Mount Auburn, Ohio	1.52	0 30	26, 1880
Providence, R. I	3.50	0 35	6, 1878
Auburn, N. H	3.00	0 35	27, 1877
Hulmeville, Pa	2.20	0 35	25, 1880
Pittsburg, Pa	1.85	0 35	16, 1884
Cincinnati, Ohio	1.85	0 35	27, 1882
Silver Falls, Tex	1.82	0 35	20, 1893
Alexandria, S. Dak	2.65	0 40	15, 1894
Quitman, Ga	2.30	0 40	30, 1893
Sharon Springs, Kans	2.00	0 40	20, 1892
Jacksonville, Fla	3.72	0 41	20, 1873
Philo, Ill	2.63	0 45	5, 1892
Hudson, Wis	2.50	0 45	11, 1891
Detroit, Mich	2.48	0 45	31, 1878
Sandusky, Ohio	0.25	0 45	21, 1892
Charlotte, N. C	2.01	0 45	3, 1890
Weldon, N. C	3.43	0 50	22, 1892
Fort Union, N. Mex	2.34	0 50	12, 1883
Bushnell, Ill	4.02	1 00	5, 1893
Princeton, Mo	4.00	1 05	15, 1891
Campo, Cal	11.50	1 20	12, 1891
Plover, Wis	4.50	1 30	3, 1890

*Record incomplete.

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 7. Arkansas, 1, 16, 26. California, 26, 27, 28. Colorado, 1, 2, 4 to 9, 11, 15, 16, 17, 19, 22, 23, 24, 27. Connecticut, 3, 9. Georgia, 18, 19. Idaho, 6, 7, 10, 21. Illinois, 1, 11, 12, 18, 25. Indiana, 10, 18. Iowa, 13, 16. Kansas, 23. Kentucky, 1, 10, 12, 14, 15, 17, 19, 26. Louisiana, 25. Maine, 21. Maryland, 15, 26. Massachusetts, 9, 15, 19, 20. Michigan, 28. Minnesota, 13, 15, 22. Mississippi, 15. Missouri, 10, 13, 17, 20. Montana, 6, 7, 14, 15, 28, 30. Nebraska, 16, 17, 24. Nevada, 9. New Hampshire, 25. New Jersey, 1, 13, 15. New Mexico, 10, 12, 15, 19, 29. New York, 3, 9, 15, 19, 25. North Carolina, 15, 19. North Dakota, 13, 14, 15, 22. Ohio, 12, 13, 18, 19. Oregon, 5, 11. Pennsylvania, 1, 2, 13, 15, 19. South Carolina, 13, 20. South Dakota, 9, 13, 14, 15, 20. Tennessee, 15. Texas, 25. Utah, 6, 28, 30, 31. Vermont, 19, 25. Virginia, 10, 11, 15. West Virginia, 2, 10, 11. Wisconsin, 1, 17, 20, 22. Wyoming, 3.

DROUGHT.

During August the country generally experienced a continuation of the drought that had begun in July, the only notable exception being in portions of the south Atlantic and Gulf States, and especially in western Texas, where excessive rainfall occurred.

From an agricultural point of view a drought is not merely a deficiency of rainfall, but a deficiency of water available for the use of the growing crops, whether grass, grain, fruit, or forest trees. As the water supply stored up in the soil is often sufficient to tide the plant over a long interval without rain, therefore the contents and nature of the soil are important features. Again, as the dryness of the air, the velocity of the wind, and the temperature are the principal factors in the evaporation of water from the soil, as well as from the surface of the leaves, these features must be considered. Finally, the character of the plant, especially the extent of its roots and the ease of evaporation from the leaves, determines whether it will suffer more or less as compared with other plants. Thus a drought affecting agriculture is a complex result of many considerations. The droughts that affect the water supply for cities, navigation of rivers, and irrigation depend upon a similar complexity of considerations, among which is the direct influence of the consumption of water by the vegetation growing on the soil.

Evidently, therefore, both from an agricultural and engi-

neering point of view, it is impracticable to define the intensity of a drought in general and exact terms. On the other hand, from a purely meteorological point of view, the term drought is usually considered as referring only to the quantity and distribution of the rainfall, omitting all consideration of the humidity of the air, the amount of cloudiness, the strength of the wind, but taking full account of the normal quantity and distribution of rain for the given locality; thus, no rainfall in June, July, and August on the southern Pacific slope would not constitute a drought for that region at that season, although it would do so in January and February. The interval of time elapsing between successive rainfalls is a good method of defining the severity of a drought at any one station, but when the area of a whole State is to be considered, it is necessary to recognize the fact that local rainfalls occur frequently, thus breaking up the continuity of the meteorological drought without materially alleviating the agricultural drought.

The great drought of 1894, so far as it concerns agriculture, has been but the culmination of a long period of deficient rainfall. The tables of accumulated precipitation, published monthly, show that the whole of the region in which crops have suffered during August reports a steady and generally an increasing deficiency in the accumulated rainfall since the first of January. This drought is, therefore, not merely the drought of July and August, but that of at least seven months, if not more; several of these sections reported an accumulated deficiency during the whole of the preceding year. By referring to Table VI, p. 390, of the WEATHER REVIEW for 1893, it will be seen that at the close of that year and the beginning of 1894 the following accumulated deficits were reported: New England, 3.6; middle Atlantic States, 1.3; Ohio Valley and Tennessee, 2.9; lower Lake region, 2.1; upper Lake region, 2.6; extreme northwest, 1.0; upper Mississippi valley, 4.4; Missouri Valley, 4.5; northern slope, 2.5; middle slope, 7.5.

As stated in that REVIEW, p. 379, there had been almost everywhere a steady movement from month to month toward a greater deficit, and as this movement has continued up to the present time in 1894 it is proper to call attention to the general principle that the droughts which are of importance to agriculture are not those of short duration, since such are largely compensated for by the moisture retained in the lower layers of the soil, but are those of long duration, by virtue of which the entire subsoil (from which the arable soil by capillarity draws a portion of its moisture) is appreciably desiccated.

The preceding paragraph prepares us for a better insight into the cause of the important droughts; evidently, they must be due to temporary changes in the general circulation of the atmosphere by reason of which drier air or descending currents become more frequent. Such changes are purely hydrodynamic phenomena produced by the special combinations of motions that are always combining and recombining in the atmosphere. The same special combinations will undoubtedly produce unusual winds, temperatures, or rains in other, and it may be far distant, portions of the globe.

From this point of view the special areas of heat and cold, rain and drought, cloudy sky and clear sky, stormy winds and light winds that continually recur all over the globe and are spoken of as exceptional features of the weather in the respective localities and seasons, all constitute but one grand system of compensation, geographical and chronological, such that, taking the earth as a whole, the sum of the thermal and mechanical energies, represented by the meteorological phenomena, remains appreciably constant. The principal agencies disturbing this constancy are the vulcanic heat of eruptions proceeding from the interior of the earth and the suggested possible, but not yet demonstrated, changes in the solar heat; but neither of these sources of irregularity in climatic phenomena is likely to be comparable in importance with the changes deducible by the application to the earth's atmosphere of the simple principles of mechanics of gases.

The mechanics of the earth's atmosphere is not yet understood sufficiently well to justify any attempt at very definite, long-range predictions of dry and wet seasons based on deductive theories, and our power of making predictions based on pure induction is limited by the fragmentary nature of our data, since the greater part of the earth's surface must be considered in making any such attempt. The moderate success attending the efforts in this direction made by the Weather Bureau of India is said to depend upon the fact that the cold weather rains in that country are due to cold air that descends from the snow covered regions of the Himalayas. Very different conditions prevail in the United States, but the droughts that are here experienced apparently depend also upon what is going on in the upper layers of air, i. e., those that descend from the high pressure areas of the Atlantic and Pacific oceans.

The study of droughts extending over large regions and long periods of time can not be satisfactorily pursued without a daily map of the weather over the whole globe similar to the International Map of the Northern Hemisphere.

The following interesting items relative to the present drought are extracted from the monthly reports of the respective State Weather Services:

Arkansas.—Drought conditions prevailed over a great portion of the northwest and southeast sections of the State until the latter part of the month, when general rains fell in all sections.

Arizona.—The average precipitation for the State was 1.46 inch, being 0.29 inch below the August normal. It was most deficient in the eastern and northwestern portions, where it was about one-half the usual amount.

Florida.—The greatest deficiency of rainfall occurred in the lower Indian River section.

Illinois.—The monthly precipitation was 1.32 inch below the normal of the past ten years.

Indiana.—The average deficiency of rainfall for the State is 1.18 inch; the greatest deficiency, 1.56 inch, is noted in the central portion, where the deficiencies at different stations of observation extended from 0.31 to 2.15 inches. The almost continuous drought in some localities was disastrous; stock water got scarce, wells became dry, and water had to be hauled long distances.

Iowa.—The average rainfall was 2.02 inches below the normal amount. Drought reported from Clinton until about the 17th. College Springs: The driest month ever known in Page County, the rainfall not being sufficient to measure. Not a cloudy day in the month.

Kansas.—This has been one of the driest Augusts in the history of the State. The rainfall this month is deficient over the entire State, except in Greeley and the extreme west portion of Wallace. The greatest deficiency occurs in Leavenworth, Wyandotte, Johnson, and Douglas, where it is over 4.00 inches.

Maryland.—Average rainfall was 1.42 inch below the normal. There was not more than half the usual rainfall, and although some sections received the usual quota, yet considering the entire area covered by the observations, the month must be rated as very dry.

Michigan.—The average rainfall in the State during August was 2.55 inches below the normal. There was no rain at all, or no more than a trace on twenty-three days in the southern counties, twenty-two days in the central counties, and eighteen days in the northern counties.

Minnesota.—Minnesota City: The driest August for forty-two years. Campbell: 10th, drought broken by copious rain.

Missouri.—The average precipitation for the month of August was considerably less than the normal, the greatest departure being a deficiency of 3.45 inches.

New England.—Except at Cornish, Me., and Westboro, Mass., there was a great deficiency of rainfall over all New England.

New Jersey.—The average precipitation for the month is 2.16 inches below the normal.

North Dakota.—The amount of precipitation in these sections was probably smaller on the average in August than for the past twenty years.

Oklahoma.—The average precipitation was 2.07 inches below the normal.

South Dakota.—The monthly mean precipitation was about 1.19 inch below the normal.

Tennessee.—Dry weather prevailed during the first two weeks of August.

Utah.—Showers during this month were better distributed than usual in this State and there was little complaint of drought.

West Virginia.—The drought conditions prevailing throughout the month of July continued to the end of August. Less rain fell during the month of August, 1894, than in any corresponding month since records have been kept. Stations in the counties of Vernon, Jackson, and Dodge report no rainfall during the month, and several report an occasional sprinkle only.

WIND.

PREVAILING WINDS.

The prevailing winds for August, 1894, viz, those that were recorded most frequently at Weather Bureau stations, are shown in Tables I and VIII; they are not given on Chart II, as has hitherto been the custom, but the resultant winds are published instead.

RESULTANT WINDS.

The resultant winds for the current month, as deduced from the hourly records by self-registers at about 67 regular Weather Bureau stations, are given in Table VIII. Other resultants, deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart II, in connection with the isobars based on the same system of simultaneous observation; the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a wind of average velocity; these figures (or the ratio between them and the total number of observations in this month) indicate the extent to which winds from different directions counterbalanced each other. The original north, south, east, and west components are given in detail in Table IX.

During August the resultant movement was generally from the southwest in New England and westerly on the Pacific coast; from the southeast in the Missouri Valley, and northerly in the Ohio Valley and Tennessee.

HIGH WINDS.

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles.				*Miles.*	
Huron, S. Dak	5	52	s.	Pikes Peak, Colo	23	50	ne.
Pensacola, Fla	7	52	se.	Tatoosh Island, Wash.	23	53	e.

LOCAL STORMS.

Destructive or severe local storms were reported as follows:

1st.—Carlisle, Pa., thunderstorm. Alpena, Mich., windstorm. Near Albuquerque, N. Mex., 1 person killed by lightning.

2d.—Friendship, N. Y., and Harrisburg, Pa., thunderstorms. Grafton, W. Va., rainstorm. Newton, Ala., windstorm. Pueblo, Colo, thunderstorm.

3d.—Kingston, R. I., and Montville, Conn., thunderstorms. New London, Conn., and Abilene, Tex., rainstorms.

7th.—Pensacola, Fla., windstorm. Billings, Mont., hailstorm.

9th.—South Canisteo, N. Y., thunderstorm. Near Dyberry, Pa., 1 person killed. Purcellville, Va., 1 person killed by lightning. Person County, N. C., a boy killed by lightning.

10th.—New Bedford, Mass., Staunton, Va., Olney, Ill., and Warrentown, Mo., thunderstorms.

11th.—Knoxville, Tenn., thunderstorm. Cincinnati, Ohio, rainstorm. Martinsville, Olney, and Ursa, Ill., thunderstorms.

12th.—Society Hill, S. C., horse killed by lightning. Little Mountain, S. C., thunderstorm. North Madison, Ohio, windstorm. Kimball, S. Dak., thunderstorm. Sulphur Hot Springs, N. Mex., hailstorm.

13th.—Norfolk, Va., 1 person killed by lightning. New England City, Va., hailstorm. Columbia and Unionville, Mo., Rockwell City, Iowa, and Mingusville, Mont., thunderstorms.

14th.—Near Blandville, Ky., hailstorm. Springfield, Ill., thunderstorm. Martinsville and Rochester, Ill., stock killed by lightning.

15th.—Plymouth, N. H., near Salem and near Tenafly, N. J., and Keysville, Va., thunderstorms. Near Bailey, N. C., hailstorm. New England City, S. C., and Palo Alto, Miss., thunderstorms. Egypt, Miss., and Greendale, Ky., windstorms. Wild Rice, N. Dak., thunderstorm.

16th.—Yorkville, S. C., thunderstorm. Columbus, Tex., 1 person killed by lightning.

17th.—Steffenville, Mo., stock killed by lightning.

18th.—Near Pinopolis, S. C., stock killed by lightning.

19th.—Mount Morris, N. Y., rainstorm. Near Factoryville, N. Y., Parkersburg, W. Va., and Springdale and Trenton, Tenn., thunderstorms. Henderson County, Ky., hailstorm. McConnellsville, Ohio, and Beardsley, Minn., thunderstorms. Near Halls Peak, N. Mex., rainstorm.

20th.—Eastport, Me., thunderstorm. Boston, Mass., rainstorm. Sandy Hook, Conn., man killed by lightning. Waukesha, Wis., thunderstorm. Forest City, S. Dak., 2 horses killed by lightning.

21st.—Jacksonville, Fla., and St. Vincent, Minn., thunderstorms.

22d.—Pensacola, Fla., 1 person killed by lightning. Aurora, Tex., 2 persons and 2 horses killed by lightning. Campbell, Minn., thunderstorm. Clear Lake, Minn., 3 horses killed by lightning.

24th.—Egypt, Miss., windstorm.

25th.—St. Johnsbury, Vt., thunderstorm. Massena, N. Y., horse killed by lightning. Mansfield, La., windstorm. Duarte, Cal., thunderstorm. Los Angeles, Cal., 2 persons stunned by lightning.

26th.—Cornish, Me., and Easton, Md., thunderstorms. Parkersburg, W. Va., 1 person killed by lightning. Atlantic City, N. J., 1 person killed and 2 injured by lightning. Jacksonville, Fla., thunderstorm. Florence Station, Tenn., 2 horses killed by lightning. Marlin, Tex., stock killed by lightning. Olney, Ill., and Edmanton, Cal., thunderstorms.

27th.—Port Royal, S. C., windstorm, 3 persons drowned. Yerington, Nev., thunderstorm.

28th.—Orlando, Fla., thunderstorm.

29th.—Hess Road Station, N. Y., 3 horses killed by lightning. Amelia, Fla., thunderstorm.

31st.—Salt Lake City, Utah, thunderstorm. Crook, Oreg., horse killed by lightning.

Mr. Baturoni reports from Vera Cruz that a severe thunderstorm occurred on August 18, between 4 and 5.30 a. m. Nine lightning strokes occurred in eleven minutes, but fortunately all fell outside of the city.

ATMOSPHERIC ELECTRICITY.

GENERAL STATISTICS.

The table showing in detail for August, 1894, the statistics relative to auroras and thunderstorms is placed among the meteorological tables as No. XI, instead of being given in the text as heretofore. It shows the number of stations from which meteorological reports were received, and the number

of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month. It is not certain that all the meteorological stations are equally faithful in reporting thunderstorms and auroras, and it is therefore necessary for the student to guard against the assumption that the frequency of these phenomena varies with the number of the reports. Even if the number of reports be divided by the number of stations in each State, the percentages of frequency thus obtained are liable to a similar uncertainty, and therefore for the present such percentages are omitted.

In comparing the relative frequency of thunderstorms or auroras in different portions of the globe and at different seasons of the year it is customary, and, in fact, imperative, to ignore the number of stations and the number of reports as such and to consider only the number of days on which the phenomena occur. In such studies, therefore, the number of stations is of importance principally as an indication of the probability that all of the thunderstorms and auroras have been recorded. Even from this point of view, however, it is necessary to know not merely the number of stations, but their geographical distribution within each State as an assurance against overlooking any very local phenomena that might have occurred only in the regions where no observer was at hand. Owing to the want of space in Table XI, the publication of the necessary data here referred to will be delayed until the annual summary.

THUNDERSTORMS.

A mention of the more severe thunderstorms reported during the month is given under "Local storms." The dates on which reports of thunderstorms were most numerous were: 15th, 227; 2d, 189; 1st, 188; 10th, 169.

The States where thunderstorm reports were most numerous were: Florida, Ohio, Missouri, Louisiana, Colorado, Pennsylvania, and North Carolina.

The States where the dates of thunderstorms were most frequent were: Florida, where they were recorded every day in the month, Georgia on thirty days, and Louisiana and Texas, where they occurred on twenty-nine days.

AURORAS.

The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four days preceding and following the date of full moon, viz, from the 11th to the 19th, inclusive. On the remaining twenty-two days of the month 174 reports were received, or an average of 8 per day. The dates on which the reported number especially exceeded this average were the 19th, 87; 20th, 35 [*see* p. 328]. The States from which auroras were reported by a large percentage of observers were: Minnesota, North Dakota, Oregon, and Washington.

The States where the dates of auroras were most frequent were: Iowa, 5; Minnesota, 9; New Hampshire, 5; North Dakota, 6.

DAMAGE BY LIGHTNING.

The following statistics of the damage done by lightning in August, so far as reported by the observers of this Bureau, are furnished by Mr. Alexander McAdie:

During August, 1894, 78 lives were lost and 76 persons injured; 81 barns, with a minimum loss of $129,800, were struck; 41 dwellings, 5 churches, 2 academies, and 2 mills or factories were struck; 22 horses and 15 cows, not in stables, were killed.

For purposes of comparison Mr. McAdie gives the following statement of the deaths due to lightning, so far as collected by the U. S. Weather Bureau, for the month of August during successive years, viz: 1890, 12; 1891, 34; 1892, 54; 1893, 18; 1894, 78.

INLAND NAVIGATION.

STAGE OF WATER IN RIVERS.

The following table shows the danger point and the highest and lowest stages for the month of August, 1894:

Heights of rivers above low-water mark, August, 1894.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
Red River.	*Feet.*	*Feet.*		*Feet.*		*Feet.*
Shreveport, La	29.2	— 1.1	5	— 3.4	16	2.3
Arkansas River.						
Fort Smith, Ark	22.0	2.9	15	0.6	11	2.3
Little Rock, Ark	23.0	4.8	14	3.0	31	1.8
Missouri River.						
Bismarck, N. Dak	75.0					
Pierre, S. Dak	13.0					
Sioux City, Iowa	18.7	10.9	1	7.8	27, 28	3.1
Omaha, Nebr	18.0	10.9	1	8.2	31	2.7
Kansas City, Mo	21.0	13.2	1	8.1	31	5.1
Mississippi River.						
St. Paul, Minn	14.0	2.0	24	0.2	6	1.8
La Crosse, Wis	18.0	1.2	1, 2	0.8	7-13	0.4
Dubuque, Iowa	16.0	1.2	1	0.4	16-20	0.8
Davenport, Iowa	15.0	0.5	1, 2	0.1	10, 11, 16-19, 21-31.	0.4
Keokuk, Iowa	14.0	0.2	1	— 0.7	28-31	0.9
Hannibal, Mo	17.0	1.0	1-3	— 0.2	30, 31	1.2
St. Louis, Mo	30.0	8.8	1	3.6	31	5.2
Cairo, Ill	40.0	9.9	1	5.7	21, 22	4.2
Memphis, Tenn	33.0	4.8	1	1.4	23, 24	3.4
Vicksburg, Miss	41.0	7.2	1	0.8	30, 31	6.4
New Orleans, La	13.0	4.2	1, 2	3.1	21, 31	1.1
Ohio River.						
Parkersburg, W. Va	38.0	1.2	2, 3	0.6	11, 18, 20-25, 28-31.	0.6

Heights of rivers—Continued.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
Ohio River—Continued.	*Feet.*	*Feet.*		*Feet.*		*Feet.*
Cincinnati, Ohio	45.0	5.1	19	3.5	31	1.6
Louisville, Ky	24.0	3.5	14, 22, 23	2.6	2, 3, 7	0.9
Cumberland River.						
Nashville, Tenn	40.0	2.6	2	0.7	18, 19, 23	1.9
Tennessee River.						
Chattanooga, Tenn	33.0	4.6	17	1.8	14	2.8
Knoxville, Tenn	29.0					
Monongahela River.						
Pittsburg, Pa	22.0	6.2	8, 9	5.0	5	1.2
Savannah River.						
Augusta, Ga	32.6	24.0	7	5.6	25	18.4
Willamette River.						
Portland, Oregon	15.0	12.2	1	5.2	26	7.0
Susquehanna River.						
Harrisburg, Pa	17.0					
Alabama River.						
Montgomery, Ala	48.0	16.0	25, 26	0.5	16	15.5
James River.						
Lynchburg, Va	18.0	0.4	28	0.0	1, 2, 9-26, 31	0.5
Sacramento River.						
Red Bluff, Cal	22.0	1.0	1-3	0.7	17-31	0.3
Sacramento, Cal	25.0	9.6	1, 2	8.2	23-31	1.4
Des Moines River.						
Des Moines, Iowa	19.0	3.7	30, 31	3.3	1, 2, 5, 7, 10, 16	0.4

The above table shows that no floods occurred during the month in the rivers therein tabulated. In most cases the rivers were unusually low. A local flood occurred on the 22d and 23d at Bisbee, Ariz., causing about $5,000 damage.

STATE WEATHER SERVICES.

A tabular summary of the more prominent climatological features of each State and Territory, as given in the reports for August by the directors of the respective State Weather Services, is presented in Table XII. This table gives for the whole area of any State the average departure from the normal values of the current monthly mean temperatures and total precipitation; the maximum and minimum temperatures and precipitations occurring anywhere within each State; the greatest and least monthly ranges of temperature occurring anywhere within the State. This data is essentially a summary of Table II, and therefore presents a somewhat different study of meteorological conditions from that given in Table I, which is based on regular Weather Bureau stations arranged in so-called climatic districts.

OBSERVATIONS ON THE GREAT LAKES.

REPORTS FROM VESSELS.

The Lake Marine Section of the Forecast Division has received reports from the captains of 65 vessels navigating the Great Lakes. The following miscellaneous items are extracted from their reports:

Capt. H. Cronkhite, steamship *Japan*, 2d, off Huron Island, Lake Superior, light snow flurries lasting about twenty minutes.

Capt. F. C. Rogers, steamship *Jay C. Morse*, Lake Superior, 21st to 31st, very smoky.

Capt. R. Jollie, steamship *C. B. Lockwood*, 29th, Lake Superior, very bright aurora from 9 to 11.30 p. m.

Capt. Edward Mooney, steamship *Wa-Wa-Tam*, Lake Superior, beautiful display of northern lights.

Capt. J. E. Tax, steamship *Maryland*, 3d, Lake Superior, brilliant display of aurora from 10.30 to 11 p. m.

Capt. W. A. Russell, steamship *W. A. Proctor*, 4th, St. Lawrence River, between Clayton and Brockville, aurora from 9 a. m. until after midnight.

Capt. Geo. Holdridge, *Barge* **132**, navigating between West Superior, Wis., and Ashtabula, Ohio, last ten days of month weather very smoky.

The steamship *Manola*, on lakes Erie, Huron, and Superior, reports "So much smoke from forest fires that it has been impossible to make proper observations."

Steamship *Cuba* reports smoke, 6th, on Lake Erie; 10th, on Lake Michigan; 17th, on Lake Huron.

REPORTS FROM U. S. LIFE-SAVING STATIONS.

Through the co-operation of the General Superintendent of the Life-Saving Service and the Secretary of the Treasury, the Weather Bureau has received monthly reports for the month of June from the keepers of 33 U. S. Life-Saving Stations on the Great Lakes.

SUNSHINE AND CLOUDINESS.

GENERAL REMARKS.

The quantity of sunshine, and therefore of heat, received by the atmosphere is a fundamental factor in meteorology; the quantity received by the atmosphere as a whole is very nearly constant from year to year, but the proportion received by the surface of the earth depends largely upon the absorption by the atmosphere and varies with the distribution of cloudiness. The sunshine is now recorded automatically at about 38 regular stations of the Weather Bureau, either by its photographic or its thermal effects. The cloudiness is recorded by personal observations at all stations and is given in the column of "average cloudiness" in Table I.

SUNSHINE.

An instrumental record of sunshine has been kept during the month at 18 stations by means of the photographic sunshine recorder and at 20 stations by means of the thermometric sunshine recorder; the results of these observations are given in Table IV, for each hour of local mean time (not seventy-fifth meridian time). The stations recording the largest percentages of sunshine between the hours of 11 a. m. and 1 p. m. were: Buffalo, 96; Chicago, 96; Columbus, 96.5; De Moines, 95.5; New York, 94.5; Vicksburg, 92.5.

The stations having the least percentage between these hours were: Galveston, 55; Santa Fe, 63.5; Savannah, 66.

The general average percentage for the whole month is given in the next to the last column of Table IV. The highest percentages were: St. Louis, 83; Kansas City and Cincinnati, 82. The lowest percentages were: Wilmington, 43; Eastport, 48; Galveston, 51.

CLEAR SKY.

The average cloudiness between sunrise and sunset, as based on numerous personal observations, is given for each Weather Bureau station in Table I; the complement of this average cloudiness gives the observer's estimated percentage of clear sky, and these latter numbers are given in the last column of Table IV.

COMPARISON OF SUNSHINE AND CLEAR SKY.

The sunshine registers give the duration of direct sunshine whence the percentage of possible sunshine is derived; the observer's personal estimates give the percentage of area of clear sky. It should not be assumed that these numbers should agree, and for comparative purposes they have been brought together, side by side, in the following table, from which it appears that, in general, the instrumental record of percentages of duration of sunshine is almost always larger than the observer's personal estimates of percentages of area of clear sky; the average excess for this month is 6 per cent for photographic records and 13.5 per cent for thermometric records:

Difference between instrumental and personal observations of sunshine.

Photographic stations.	Instrumental.	Personal.	Difference.	Thermometric stations.	Instrumental.	Personal.	Difference.
Cincinnati, Ohio	82	67	15	St. Louis, Mo	83	70	13
Kansas City, Mo	82	75	7	Key West, Fla	79	47	32
Dodge City, Kans	77	67	10	Salt Lake City, Utah	78	63	15
Helena, Mont	74	67	7	Columbus, Ohio	77	55	22
Portland, Oreg	72	75	— 3	Des Moines, Iowa	77	77	0
Denver, Colo	69	56	13	Chicago, Ill	73	54	19
Spokane, Wash	68	67	1	Baltimore, Md	72	63	11
Tucson, Ariz	67	46	21	Philadelphia, Pa	72	45	27
San Diego, Cal	65	68	— 3	New Haven, Conn	71	60	11
Washington, D. C	65	55	10	Colorado Springs, Colo.	70	54	16
Cleveland, Ohio	63	54	9	Buffalo, N. Y	69	48	21
Bismarck, N. Dak	62	70	— 8	New York, N. Y	69	51	18
Memphis, Tenn	57	54	3	Vicksburg, Miss	68	65	3
Santa Fe, N. Mex	56	42	14	New Orleans, La	66	65	1
San Francisco, Cal	54	56	— 2	Boston, Mass	64	44	20
Savannah, Ga	54	52	— 2	Little Rock, Ark	63	40	23
Galveston, Tex	51	50	1	Portland, Me	61	35	26
Eastport, Me	48	39	9	Detroit, Mich	58	54	4
				Rochester, N. Y	55	55	0
				Wilmington, N. C	43	55	—12

NOTES BY THE EDITOR.

CLIMATE AND VEGETATION—REQUEST FOR DATA.

Some years since the present editor of the WEATHER REVIEW was ordered to compile an official report embodying whatever is known with certainty from experiment and observation on the subject of the influence of the weather on vegetation, and especially on our important crops. He is now revising his preliminary report of June 30, 1891, on this subject. An important part of this study consists in comparing the weather with the dates of budding, leafing, flowering, setting, and ripening for each species of plant, and he desires to make his collection of phænological data for America as complete and exhaustive as possible. The readers of this REVIEW will confer a favor by sending to the Weather Bureau references to records of American phænological observations and studies, whether printed or manuscript, of old or modern dates, by themselves or by others. As a check against overlooking the manuscript records of the older meteorological observers, many of which are preserved either in Washington or elsewhere, the editor would be especially grateful for reference to their papers. Those who have rare old periodicals, newspapers, almanacs, etc., containing the desired data which they are willing to loan may be assured of their safe return in a short time. Those who desire to enter upon a series of observations of this class will be furnished with the necessary instructions by the Chief of the Weather Bureau.

DATES OF FIRST KILLING FROSTS.

Dr. J. C. Neal, director of the Experiment Station, Stillwater, Okla., states that in that Territory, owing to the long drought, Kafir corn did not begin to bloom till September 25, and that if it is frosted before the seed is ripened, both forage and seed will be lost; it is therefore desirable to know when the first killing frost may be expected, as the corn must be cut for forage if it has not time to ripen before frost. The following is a list of such dates as the Weather Bureau has on record. The earliest frosts in surrounding States have occurred as follows: Southern Kansas, October 20; southwest Missouri, October 9; western Arkansas, October 4; northern Texas, October 14. But frost is not a matter that can easily be anticipated from such statistical data; it is evident that in Oklahoma frost comes later than in Missouri and Arkansas on the east, or in Kansas on the north, and is not likely often to occur until within ten days after those sections have been visited.

Indian Territory.—Anadarko, 1892, October 9; 1893, October 13. Fort Supply, 1890, September 30; 1891, September 25; 1892, October 8; 1893, October 13. Gwenndale, 1893, November 14. Healdton, 1890, December 7; 1891, October 7; 1892, November 9. Jimtown, 1889, November 2. Lehigh, 1892, November 18; 1893, October 27. Pauls Valley, 1892, October 24; 1893, October 27. Purcell, 1892, October 24; 1893, October 27. South McAlester, 1891, October 1; 1892, November 9.

Oklahoma.—Buffalo, 1892, October 14. Burnett, 1892, October 10; 1893, October 15. Fort Reno, 1889, October 26; 1890, November 3; 1892, November 6; 1893, October 29. Fort Sill, 1879, November 18; 1880, December 1; 1881, November 3; 1882, November 29; 1884, November 19; 1885, October 21; 1886, October 27; 1887, October 27; 1888, October 3; 1889, November 9; 1890, November 3; 1892, October 25; 1893, November 12. Gate City, 1893, October 8. Guthrie, 1890, November 26; 1891, October 7; 1892, October 25. Kekuk Falls, 1892, October 25; 1893, October 16. Kingfisher, 1892, October 24. Mangum, 1892, November 10; 1893, October 27. Ponca, 1892, November 17. Sac and Fox Agency, 1892, October 8. Winnview, 1893, November 12.

THE AURORA OF AUGUST 19–20, 1894.

On August 19 and 20 the principal area of high pressure that passed southward from Hudson Bay during the month reached the Lake region, Missouri and Ohio valleys, and notwithstanding the extensive areas of smoke that then prevailed, numerous observers witnessed the brilliant aurora that accompanied this high area. As usual there was also an extensive system of telegraphic ground currents. One of the few areas of 20° fall in temperature during this month, i. e., area "D," occurred at this time.

A remarkable feature of this aurora was the fact of its visibility in Texas, South Carolina, and Tennessee, notwithstanding the bright moonlight. So far as can be judged from the few reports here given it began to be visible on the 19th at about 10.30 p. m., seventy-fifth meridian time (which is that required to be used in all Weather Bureau work unless otherwise specifically mentioned), in the Rocky Mountain plateau. By 1.10 a. m. of the 20th it had become visible at St. Vincent, Duluth, and Columbia, S. C., and a little earlier at Knoxville and Abilene. By 1.20 a. m. or 2 a. m., it had become visible in northern California and eastern Washington. The following accounts have been received from regular Weather Bureau observers:

Abilene, Tex.—20th, an unusual spectacle in this latitude was observed this morning in the way of aurora. Noticed at 12.40 a. m., it continued with varying intensity till 3 a. m. It consisted of a broad zone of rose-tinted light above a dark segment whose altitude was 10°. There were streamers and white beams and a tremulous motion.

Baker City, Oreg.—19th, aurora observed from 10.30 p. m. to midnight, consisting of a bright luminous arch, extending halfway up to the polar star and directly thereunder at the highest point of arch. No streamers observed. Clear weather.

Columbia, S. C.—20th, an aurora of light was observed by persons up at 1.10 a. m., of a reddish purple color of varying intensity, fading and flashing at intervals. It apparently was of strong electrical energy, as it interrupted the workings of telegraph lines in all directions. The observer did not see the phenomenon, and has not been able to get a complete description of it or of the time of its beginning and ending.

Duluth, Minn.—20th, aurora observed at 1.10 to 1.30 a. m. White luminous beams rapidly changing in position and number, in azimuth 90° to 170°. At 1.20 a. m. a few of these extended from the horizon to the zenith, and at this time a pink glow appeared at altitude 40° to 60°, azimuth 80° to 100°, and continued visible about one minute.

Havre, Mont.—20th, an aurora began at 4 a. m., and ended at dawn. The aurora was of a white color, patches of cirro-stratus clouds prevailing here and there in the sky. At 5 a. m. there was an auroral corona, a union of beams south of the zenith, the aurora still retaining the white color. The beams or streamers would disappear and reappear after a short interval of time of from three to five minutes; at 5.30 a. m. patches of luminous haze of a reddish color appeared in the northwest. The aurora extended fully 60° south of the zenith at 5.40 a. m. At times during this display the wires in the telegraph office could not be worked. There was no auroral arch visible during the display. The azimuth of the aurora, west end, was about 40°, east end 320°.

Helena, Mont.—19th, an aurora consisting of a pale yellow light and shooting beams was observed at 9.50 p. m. The shooting beams, which were of a deep orange color in the west and yellow in the east, extended to the zenith. At 10.40 p. m. an auroral beam of a light straw color, about 2° in width, and which remained visible for about fifteen minutes, extended from the eastern to the western horizon, passing 20° south of the zenith. At 12, midnight, a perfect corona was formed. The auroral light extended to the horizon in the south and southwest and, with the exception of some shooting beams, that in the north disappeared. The color of all shooting beams as they reached the zenith from every direction changed to salmon, and made a most brilliant display. 20th, aurora of previous day ended at 4 a. m.

Knoxville, Tenn.—20th, a. m., just after midnight, and directly after a rain that had been falling for half an hour, a red light of large extent in the north. As the black clouds moved toward the northeast the red cloud moved also. The display interfered with the telegraph wires to a considerable extent.

Lander, Wyo.—20th, at six o'clock this morning an aurora was observed, which, had it not been for the bright moonlight, would have been a magnificent display. The northern sky was covered with immense streamers of light, some of pale pink color reaching up to and beyond the zenith, where they were lost in the moon's rays. The display must have commenced about 12, midnight, and continued until about daylight, or 7 a. m.

Miles City, Mont.—20th, aurora became visible at 12.02 a. m. At first it

was a pale arch, about 30° azimuth and 15° altitude, with dark background, the whole phenomenon being in the north. At 1 a. m. pale "merry dancers" appeared, shooting upward and moving across the sky to the southern horizon. At 1.30 a. m. the arch and background which was previously seen in the north was exactly reproduced in the south. It disappeared at the oncoming of daylight.

Rapid City, S. Dak.—19th, at 10.50 p. m. an aurora observed; azimuth, 110° to 240°; arch nearly to zenith. At 10.58 a second arch appeared, with interspace of sky, developed from west to east, varying in width, average about 10°, and color whitish to rose. 20th, aurora at 12.15 a. m. Streamers dimly seen through haze. Reliable persons state grand display at 5 a. m.

Red Bluff, Cal.—20th, fine auroral display observed in the north from 2 a. m. to 5.15 a. m. When first observed, the aurora appeared as bars of varied colored light, extending from below the horizon upward to within 22° of the zenith, and had an azimuth distance of from north to 25° east. At 4.10 p. m. the above form disappeared and in its place, but a few degrees to the east, appeared a wide blotch of red. This gradually died away and by 5.15 a. m. had entirely disappeared.

Sacramento, Cal.—20th, auroral light from 1 a. m. to 4 a. m., consisting of a diffused reddish tinge, with an occasional stream shooting upward to an angle of 45°.

Salt Lake City, Utah.—19th, a faint aurora was observed from 10.50 p. m. to 11.30 p. m. It began with a reddish glow, azimuth 145° to 175°, and white light, azimuth 175° to 200°; at 11.15 p. m. a dark cloud-like haze spread out between azimuths 190° to 140°, and soon a dark segment was formed, altitude 15°. Above this was a changing glow some 5° to 10° in width, in color varying from yellow to deep green. Faded away after 11.25 p. m. A few faint streamers, very fitful, were observed. At the closing stage of the aurora parallel bands of cirro-cumulus clouds extended from north far toward south across the sky.

Spokane, Wash.—20th, an aurora was observed at 2 a. m.; parallel beams which seemed converge near the zenith, and had a slightly tremulous motion; the aurora was extremely brilliant at 5 a. m., and had disappeared by 6 a. m.

Walla Walla, Wash.—20th, auroral clouds observed at 12.17 a. m.; disappeared at 12.48 a. m.; altitude 50°; azimuth 270°. Color pale resembling a cirrus cloud; shape of a feather with the butt end toward the north and pointing southwest.

Williston, N. Dak.—19th, aurora or corona observed at 10.45 p. m., extending entirely across the horizon from north to south and converging to a point a little south of the zenith, forming a quivering mass of flame. It was most brilliant at 11.45 p. m., and continued visible until after midnight. The prevailing colors were a pale yellowish white and dull pink. 20th, the aurora from night previous became faint and disappeared at 1.30 a. m. Previous to its disappearance it formed one arch of about 145°, very brilliant and bright red and yellow colors. The moon, during the auroral display, was most brilliant.

Winnemucca, Nev.—19th, 10.45 p. m., aurora from northwest to northeast, arch 25° high, on horizon small segment of haze, then pale green, 10° high, upper part patches of pink changing from one place to another. Moon rose above the mountains 11.45 p. m. After the moon rose the pale green became very bright; patches of bright, pale green would pass from northwest to northeast in place of the pink at top of arch, which had a hazy appearance. 20th, the very bright, pale green to top of arch 30°. Hazy segment underneath increasing to 15°. Both gradually rising. Night watchman states the light of the aurora was overhead at 3 a. m. in horizon from points in west to southeast. Continued until daylight.

SMOKE FROM FOREST FIRES.

The extensive fires during July and August, principally in Minnesota, Wisconsin, Michigan, Pennsylvania, and New York, and the absence of extensive strong winds, have conspired to cover a large portion of the country with an unusually thick cloud of smoke. The loss of property and life need not here be dwelt upon, but the following considerations relative to the meteorological phenomena are appropriate to this REVIEW.

Atmospheric moisture.—The burning of the forest covering over any area is equivalent to the abnormal addition to the atmosphere of the moisture that is otherwise locked up in the forest and the soil, and this may be estimated on the average as equivalent to a layer of water or rainfall of one-quarter of an inch over the whole burnt area. As this moisture is not likely to fall on or near the region of the fire, but is diffused over a much larger area, its total effect in increasing the depth of rainfall at any place is inappreciable and its effect in increasing the general quantity of rainfall is too slight to be of any importance. The experience of this summer is sufficient to show that the forest fires are not necessarily followed by rain and are not a practicable method of inducing rain in dry seasons.

Atmospheric heat.—The entire consumption of the forest covering adds an abnormal amount of heat to the atmosphere. The burning of a pound of green forest wood evolves a quantity of heat that is estimated to be sufficient to warm up 4,600 pounds of water, or 18,500 pounds of air, by 1° F.; this is about the weight of ordinary air near the ground contained within a cube 60 feet on each side. But a cube of atmosphere of this size within an ordinary forest area may be estimated to contain 10,000 pounds of heavy and light wood, omitting the thicker timber and branches that do not burn in a forest fire. Therefore, the rapid burning of the lighter material in a forest area gives out heat enough to warm the forest air within 60 feet of the ground by 10,000°. This warmth, of course, is the cause of the rapidly ascending streams of hot air and smoke, so that fresh supplies of cooler air come in to share the heat, and the general result is that a volume of air many times larger than the original layer is warmed to a correspondingly less extent. The heat thus carried up into the atmosphere is rapidly diffused and eventually lost by radiation into space. The clouds of warm smoke that are carried away by the wind radiate a little warmth downward to the earth's surface, but scarcely sufficient to appreciably raise the temperature. The immense work directly done by this abnormal heat consists mostly in expanding the original air over the forest; as this expanded air rises other dry air comes down and the general result of the process is that an abnormal amount of topsy-turvy movement, or vertical circulation of air, is produced over and above that due to the heat of normal sunshine.

The quantity of heat from sunshine received by a horizontal area at latitude N. 45° on the 20th of June, after allowing for the absorption of the heat by the atmosphere, can be computed from the data given by Angot in his Theoretical Researches on the Distribution of Heat at the Surface of the Globe. If the so-called solar constant is, as given by Violle, 2.54 calories per square centimeter per minute, and if the coefficient of atmospheric absorption be 0.7, then during the sunshine of one day at the summer solstice at latitude N. 40°, the heat that reaches the earth's surface is $0.660 \times 1{,}164.25 = 768$ calories per square centimeter. This is, therefore, sufficient to warm by 1° C. a layer of water that is 768 centimeters in depth; expressed in English measures, it will warm by 1° F. a layer that is 169 inches deep. For latitude N. 45° this becomes 165 inches, and for latitude N. 50°, 161 inches, or on the average for the northern portion of the United States about 14 feet in depth of water. This depth in water may be converted into depth of air by considering the density of air (0.0012759) and the specific heat of air relative to water (0.2375). The resulting factor is about 3145, whence it follows that a layer of air about 45,000 feet in depth would be warmed up 1° F. by the action of all the heat received, during the 20th or 21st of June, at any point in latitude N. 45°; or, in other words, a layer of air 60 feet in depth would be warmed up 750°. Comparing this normal maximum effect of solar heat with the previous computation of the effect of burning forest, we see that in the locality where it occurs a forest fire can heat its atmosphere more than the hottest sun of June in the ratio of 10,000 to 750. Fortunately, however, the general influence of the forest fire upon the whole atmosphere is much smaller than that of the sun, because the fire is of small extent, while the sun affects the whole earth.

The actual area covered by the forest fires of August in Minnesota, Wisconsin, and Michigan did not, so far as we have received reports, exceed 5,000 square miles, whereas the area covered by the smoke, and, therefore, hot air, from these fires before the heat was all lost by radiation was not less than 1,000,000 square miles, Consequently, if we compare the solar effect over this large area and the more intense forest fire effect over the small area, we shall find that they are

in the ratio of 750,000,000 to 50,000,000, or the solar effect is fifteen times that of fire.

Although it would seem that we have thus belittled the meteorological importance of the forest fire, yet this is far from being true. The equivalent of 6 per cent of the heat received over a large portion of the United States from the sun on the hottest day of the year was, in the course of a few weeks, suddenly returned to the atmosphere by a series of local fires; possibly 1 per cent of the moisture normally evaporated was also similarly returned. As these clouds of smoke and moisture floated away, the sunshine that would normally fall upon the earth's surface was absorbed by them in the upper layers of the atmosphere. The final result was, therefore, to diminish the midday temperature of the air at the earth's surface and to increase its temperature in a higher stratum. But the extra heat is eventually lost by radiation, and the only effects that endure for several weeks are the greater quantities of moisture and smoke or dust left in the atmosphere and the general disturbance of atmospheric motions, due to the original intense topsy-turvy movements.

A number of stations have reported that the occurrence of frost has been prevented by the overhanging clouds of smoke, and many stations seem to have experienced less heat at midday and less cold at nighttime, owing to this protective covering, whose influence is therefore seen not so much in the average temperatures of the month as in the maxima and minima and the diurnal ranges. The dates on which smoke or smoky haze was especially noted at numerous stations in the respective States are as follows:

Colorado, 22d–30th; Connecticut, 23d–31st; Delaware, 21st; Idaho, 18th–31st; Illinois, 17th–31st; Indiana, 26th–31st; Iowa, 18th–31st; Kansas, 22d–31st; Kentucky, 21–31st; Louisiana, 23d–28th; Maine, 23d–28th; Maryland, 21–31st; Massachusetts, 23d–31st; Michigan, 14th–31st; Minnesota, 20th–31st; Missouri, 21–31st; Nebraska, 18th–31st; Nevada, 21–31st; New Mexico, 20–26th; New York, 21st–28th; North Carolina, 23d–30th; North Dakota, 13–28th; Ohio, 13–28th; Oregon, 13–28th; Pennsylvania, 20–30th; South Carolina, 23d–30th; South Dakota, 20–29th; Tennessee, 28th; Texas, 24–25th; Utah, 21–26th; Vermont, 21st; Virginia, 27th–31st; Washington, 20–30th; West Virginia, 24–28th; Wisconsin, 9–29th; Wyoming, 23d–26th.

The following notes with regard to smoke at special stations are taken from the published reports of the State Weather Services:

Minnesota.—New Ulm, latter half of month. Clear Water, the whole month. Medford, 9th. Airlie, 20th–21st. Sunrise City, most of the month. Carver, sun not seen for many days. Clear Lake, 20th and 29th. Crookston, 29th. Belle Plaine, 6th and 7th, 27th and 28th. Rolling Green, 23d–31st. Granite Falls, about half the month. Campbell, at the end of the month.

New Jersey.—Oceanic, last five days of the month. Dover, last week of the month very hazy. Bayonne, 26th to 31st, especially on the 30th. Millville, 29th to 31st to the north of this station.

North Dakota.—Berlin, last half of the month.

West Virginia.—Over almost the entire State from the 28th to the close of the month.

Wisconsin.—Royalton, most of the month. Oconomowoc, 25th–31st. Medford, dense smoke for several weeks. Fond du Lac, during all the month. Black River Falls, 9th.

The gradual spread of the smoke or haze can not be clearly deduced from the indefinite reports at hand.

THE POSSIBILITIES OF LONG-RANGE FORECASTS.

If we had perfect command of this subject, we should be able to trace the motion of a particle of aqueous vapor from point to point over the whole earth and could predict whether at any time in the future it will fall as rain or rise and fly away as an invisible gas. In the absence of this higher knowledge the only long-range forecasts that we are at present able to make are based upon empirical and very imperfect rules deduced from our study of the accumulated climatological statistics. Of course, such predictions do not imply any special knowledge of meteorology. Among the methods adopted in long-range forecasts are the following:

A.—The average rainfall, temperature, etc., for any period, such as a month, and deduced from many years of observation, is called the normal. The excess or deficiency of this month in any given year is called the departure for that year. A general prediction may be made to the effect that the rainfall for a given month and place may be expected to lie within the range of the values indicated by these known departures.

B.—The series of annual or monthly values just mentioned gives us the means of finding out whether there is any simple sequence or connection between them and the apparently unconnected values that occur from year to year. Thus, it sometimes happens that rainy seasons come after two or three dry seasons, or that after the same month has been dry in three successive years one is then justified in predicting a wet month. Thus, Governor Rawson elaborated a system for the prediction of rain and the sugar crop in Barbados.

C.—Slight but appreciable widespread, rather regular fluctuations of temperature, pressure, and rain have been revealed in the climate of Europe by Dr. Brückner, who finds that a deficient temperature and an excess of rain have alternated with excess of temperature and deficiency of rain in periods of thirty-six or thirty-seven years during the past two or three centuries; the glaciers increase and diminish in volume, or advance and retreat, in correspondingly regular but somewhat retarded intervals. Predictions may be based on these well-established periods.

D.—Droughts are sometimes due to what happens in distant regions; thus, if there is a heavy snow on the Himalayas during the winter there is a special liability to drought in lower India in the following summer, so that the prediction of a drought may be based upon the reports of snowfall in a distant region several months before the drought occurs; but other droughts may occur without this preliminary snowfall. This connection is, so far as at present known, a local, arbitrary, or accidental one, and has not yet been found to recur in any other portion of the globe.

E.—Droughts or floods may occur every year in some portion of an extensive region, so that it may become possible to predict the occurrence in a special section one year because one has occurred in another section a previous year. Thus, a serious drought in the lower Indian peninsula has, on five occasions, been followed by one in northern India the next year.

F.—If we had maps of the weather of the whole globe for every month for a long series of years we should, undoubtedly, be able to find many similar coincidences so that a drought for a given section might be predicted from the rainfall, the snowfall, the temperature, the pressure, or other conditions in a distant part of the globe. As a rule, important climatic crises are the results of changes that have been going on slowly for a long time in distant parts of the earth. The general circulation of the air constitutes a complex system in which the areas of hish pressure and dry clear air are the results of slowly descending winds moving toward the equator; the general rains are formed wherever a descending current of air, a mountain range, or other obstacle has an opportunity to push up the moister air of the earth's surface. From this point of view rainy and dry and cold and hot seasons depend largely upon the varying relations of the upper and lower currents to the continents and even to each other. The long-range prediction of the climate of any season must depend upon the prediction of the general character of the horizontal and vertical movement of the air. In our present geological epoch the continents are permanent features, and we consider only the changes that take place in the atmosphere, but in studying the climatic changes of earlier geo-

logical epochs we have to consider the changes in elevation of the continents themselves.

G.—Such apparent connections as that between snowfall on the Himalayas and the subsequent drought in northern India are not to be thought of as cause and effect respectively. It might be argued that the layer of snow must be evaporated, or melted, thereby absorbing more heat than would have been required if it had fallen as rain and rapidly drained away; but this cooling influence is distributed over many weeks and through the immense quantity of air that has passed over the snow fields during the winter and spring, and is thereby rendered too slight to have any great local influence in India. A broader view of the subject shows us that the winter snowfall and the summer drought are simply two features of an extensive system of changes in which the whole atmosphere of the earth takes part. The whole globe may be divided into regions where the lower stratum is moving either horizontally, or upward or downward, and where the upper stratum has similar diversities of movement. These systems of motion determine whether we shall have fair weather or rain, hot weather or cold, from day to day and accumulatively from month to month. Now these three movements are related to each other in such a way that the sum total of the energy involved throughout the atmosphere is sensibly constant, while the localities at which the upward and downward motions are taking place are undergoing perpetual changes.

The centers of high pressure over the oceans and continents slowly sway east and west or north and south; the paths of the storm centers vary in a similar manner to suit the changes of these larger areas and the centers themselves move rapidly or slowly in response to these same changes. The air that ascends between the northern and southern tropical, regions of high pressure descends sometimes in high latitudes giving them cold weather with rain or snow; at other times in low latitudes, giving them warm weather with droughts. It matters not whether the droughts in southern regions chronologically follow or precede the snows of the northern regions; in neither case can either one be spoken of as the cause of the other, but each is in its turn the result of changes in the so-called general circulation of the atmosphere.

This general circulation with all its variations, diurnal, annual, and secular, is dependent upon the intrinsic density of each portion of the atmosphere and on numerous forces, such as the heat received from the sun, the attraction of the sun, moon, and earth, the resistance offered by the irregular surface or the earth, and the interaction of slow and rapidly moving masses of air. The proper study of this subject constitutes the application of hydrodynamics to meteorology.

The meteorological problem has some analogy to that offered by the hydraulics of the Mississippi River, where cut-offs, cave-ins, mud banks, and crevasses are continually forming and reforming. We do not expect to be able to foretell when and where these will occur many years in advance, but we do keep a watch on the condition of the river, and when conditions are favorable for the formation of any important change we watch the process until the catastrophe becomes more or less imminent, and then begin to make estimates that may be called predictions, as to the exact time and place of the event.

In meteorology the best we can do at present in long-range predictions is to chart and study the occurrence of abnormal weather conditions over the whole globe; these phenomena must be interpreted in the light of all the knowledge we have of the mechanics of the atmosphere, for they are the results of purely mechanical operations covering the whole range of the mechanics of heat, gases, and vapors.

DEATH OF MAJ. J. W. A. WRIGHT, OF ALABAMA.

Maj. James William Albert Wright, for many years voluntary observer of the Signal Service and Weather Bureau, died at his station, Talladega, Ala., on August 11, 1894. Major Wright will be remembered as the successor of the late Prof. Henry Tutweiler, Smithsonian and Signal Service observer at Greene Springs, Hale Co., Ala. The work of these two observers covers a period of over forty years, and has given to central Alabama a fund of climatological data that will be a standard of reference for many years to come. The results of their labors were collected and published by Major Wright in 1888, as No. 5 of a series of Special Papers of the Alabama State Weather Service.

Major Wright always took an active part in the meteorological work of his State; his cheerful and hearty co-operation in all matters pertaining to the State or National service was a source of pleasure to those associated with him.—A. J. H.

METEOROLOGICAL TABLES.

[*Prepared by the Division of Records and Meteorological Data.*]

The following pages present in tabular form the climatological data for the current month, on which the text of the preceding part of this REVIEW has, to a large extent, been based.

For a detailed description of the methods of observation, compilation, and computation relating to these tables, the reader is referred to page 129 of the MONTHLY WEATHER REVIEW for March, 1894. The general contents of the tables are as follows:

Table I gives for 140 Weather Bureau stations, making two observations daily, and for 10 others making only one observation, the ordinary climatological data.

Table II gives for about 2,200 stations, occupied by voluntary observers, the mean and extreme temperatures and the total precipitation.

Table III gives climatological data for about 30 Canadian stations.

Table IV *a* gives for 38 Weather Bureau stations the percentages of sunshine for each hour of local mean time.

Table IV *b* gives for 43 Weather Bureau stations the total hourly rainfall for each hour of seventy-fifth meridian time.

Table V gives for 81 stations the mean temperatures for each hour of seventy-fifth meridian time.

Table VI gives for 66 stations the mean pressures for each hour of seventy-fifth meridian time.

Table VII gives for 138 stations the mean hourly movement of the wind.

Table VIII gives for 68 stations the resultant movements and directions of the wind from continuous registrations.

Table IX gives for 140 stations the component and resultant directions of the wind based on simultaneous observations at 8 a. m. and 8 p. m., seventy-fifth meridian time.

Table X *a* gives for 47 voluntary stations the normals and current departures of mean monthly temperatures.

Table X *b* gives for the same stations the similar data as to precipitation.

Table XI gives for each day of the month the number of thunderstorms (T), and of auroras (A), reported by all the observers of each State.

Table XII gives the principal climatic features of the month as reported by each State weather service.

TABLE I.—*Climatological data for Weather Bureau Stations, August, 1894.*

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Humidity and precipitation.				Wind.				Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Mean temperature data since opening of station.			
			Mean pressure, 8 a. m. and 8 p. m. + 2.	Mean reduced.	Departure from normal.	Mean max. and min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.				Highest for month.	Year.	Lowest for month.	Year.
New England.						66.0	— 1.0										2.17	— 2.0												
Eastport	76	23	29.88	29.97	.00	59.2	— 1.6	84	24	67	47	22	51	31	52	80	1.32	— 2.1	10	4,681	sw.	25	sw.	18	6	17	8	6.1	62.3	1893	59.1	1879
Portland	103	23	29.87	29.97	— .01	64.6	— 0.4	88	24	72	46	22	57	25	55	76	3.27	— 0.4	9	4,430	s.	21	nw.	21	4	14	13	6.5	70.5	1876	64.1	1885
Northfield	872	8	29.10	30.02	+ .04	61.2	— 1.5	84	*	73	33	27	49	39	54	82	3.23	— 1.0	11	5,272	sw.	30	w.	21	9	14	8	5.2	64.8	1892	61.0	1887
Boston	125	24	29.88	30.02	+ .03	68.0	— 0.5	90	8	76	47	22	60	28	57	73	3.03	— 1.4	7	7,038	sw.	26	sw.	25	10	10	11	5.6	72.4	1872	67.1	1887
Nantucket	14	8	30.02	30.03	+ .02	66.4	— 1.0	79	19	72	54	12	61	16	61	84	1.20	— 3.3	7	6,484	w.	27	ne.	21	10	12	9	5.5	68.8	1891	66.4	1894
Woods Holl	.....	17	.....	.....	.....	67.2	— 1.3	77	20	72	54	22	62	15	.....	.....	1.31	— 2.9	6	8,710	sw.	32	sw.	31	10	10	11	5.5	70.9	1877	66.2	1874
Vineyard Haven	.....	8	.....	.....	.....	69.0	— 2.0	83	19	76	54	22	62	21	.....	.....	1.74	— 2.5	7	.....	sw.	.....	.....	...	12	7	12	....	73.0	1892	69.0	1894
Block Island	27	14	30.00	30.03	+ .02	67.1	— 1.0	77	3	72	55	22	62	15	62	84	1.53	— 1.6	7	9,035	sw.	36	ne.	21	10	16	5	4.8	70.2	1882	67.1	1894
Narragansett Pier	.....	13	.....	.....	.....	69.7	— 1.7	79	*	74	43	22	60	27	.....	.....	2.62	— 1.1	7	.....	sw.	.....	.....	...	19	9	12	....	71.0	*	66.7	1894
New Haven	107	22	29.90	30.01	— .01	68.9	+ 0.4	87	24	78	48	22	60	30	60	78	1.70	— 3.8	8	5,233	sw.	22	s.	18	17	6	8	4.0	74.1	1877	67.3	1883
New London	45	24	30.00	30.04	+ .02	67.9	— 0.6	84	24	75	47	22	61	27	62	85	2.91	— 2.1	9	4,729	s.	23	ne.	2	12	13	6	4.8	72.9	1877	67.5	1874
Mid. Atlantic States.						72.7	— 0.6										3.38	— 1.4												
Albany	85	21	29.93	30.02	+ .03	69.3	— 0.9	90	8	79	48	22	59	31	58	73	2.26	— 1.5	12	4,506	s.	36	sw.	25	14	7	10	5.2	73.3	1881	66.8	1874
New York, N. Y	185	24	29.84	30.03	+ .01	72.8	+ 1.0	90	8	82	55	22	64	26	59	70	1.54	— 3.2	7	5,980	s.	26	nw.	15	12	10	9	4.9	75.5	1872	70.6	1874
Harrisburg	377	7	29.63	30.03	.....	71.4	— 0.7	90	8	80	54	22	62	26	61	75	4.08	— 0.8	9	3,459	n.	28	w.	2	9	12	10	5.5	74.2	1892	69.8	1889
Philadelphia	117	24	29.91	30.03	.00	73.0	— 1.0	89	1	81	58	22	64	23	61	72	2.15	— 2.7	7	5,876	sw.	23	nw.	9	11	12	8	4.7	76.9	1871	71.3	1874
Atlantic City	53	21	29.98	30.03	+ .02	69.6	— 1.2	88	9	75	52	22	61	21	64	82	3.24	— 1.5	8	6,227	sw.	27	n.	4	13	9	9	5.0	74.8	1877	69.3	1889
New Brunswick	.....	.....	.....	.....	.....	71.8	.....	91	8	82	51	22	61	30	.....	.....	1.87	.....	8	.....	sw.	.....	.....	.....	4	23	4	.....	.....	.....	.....	.....
Baltimore	179	24	29.84	30.03	.00	73.2	— 1.3	93	8	81	57	22	65	26	61	70	1.41	— 3.1	8	3,880	se.	20	se.	18	19	9	3	3.7	79.5	1872	72.6	1874
Washington, D. C	112	24	29.92	30.01	.00	74.0	+ 0.5	92	9	83	54	22	65	31	63	76	2.00	— 2.4	8	3,219	s.	26	sw.	15	11	14	6	4.5	79.0	1872	71.6	1874
Cape Henry	.....	21	.....	.....	.....	75.0	— 1.4	92	*	82	62	4	68	24	.....	.....	6.11	+ 0.3	10	.....	ne.	.....	.....	...	1	8	22	....	78.8	1888	74.1	*
Lynchburg	685	24	29.34	30.06	+ .03	71.6	+ 0.1	96	9	85	57	7	64	30	61	78	2.57	— 1.5	13	2,089	ne.	26	se.	2	7	17	7	5.4	80.2	1881	72.0	1874
Norfolk	57	24	29.97	30.03	+ .01	74.5	— 1.3	93	9	82	60	5	67	22	68	86	8.45	+ 2.1	13	4,302	ne.	36	w.	3	11	9	11	5.4	79.5	1872	73.3	1874
S. Atlantic States.						73.3	— 0.1										0.67	+ 0.3												
Charlotte	773	16	29.24	30.04	+ .02	75.9	— 0.6	96	10	85	57	5	66	28	66	79	3.03	— 2.3	13	3,287	sw.	36	nw.	11	17	8	6	4.3	80.9	1881	73.6	1879
Hatteras	11	14	30.03	30.04	+ .02	77.0	— 0.2	86	10	82	67	23	72	14	71	84	7.35	+ 1.0	15	6,698	ne.	36	w.	10	7	16	8	5.5	79.0	1892	75.5	1886
Kittyhawk	9	20	30.00	30.01	.00	75.8	— 1.6	92	9	81	64	5	71	18	69	82	8.03	+ 1.0	12	7,804	ne.	36	ne.	5	17	7	7	3.9	83.7	1888	74.9	1886
Raleigh	388	8	29.64	30.04	— .01	75.4	— 0.2	96	9	84	57	5	67	27	68	85	6.15	— 1.8	12	2,909	sw.	28	n.	15	3	13	15	7.0	78.7	1892	73.4	1889
Southport	34	18	30.00	30.03	+ .01	77.8	— 0.7	89	10	83	67	6	72	16	72	83	4.84	— 1.0	12	6,115	w.	31	sw.	4	10	10	5	4.5	81.0	1876	70.2	1889
Wilmington	78	24	29.96	30.04	+ .02	78.1	+ 0.3	95	9	85	65	5	71	21	73	91	4.23	— 3.4	13	4,565	sw.	30	ne.	15	16	5	10	4.5	80.9	1872	76.0	1889
Charleston	52	24	30.00	30.05	+ .03	80.0	+ 0.2	96	10	87	67	20	73	26	72	83	12.11	+ 4.8	21	5,147	sw.	28	e.	17	1	20	4	5.8	82.9	1878	78.0	1889
Columbia	.....	8	.....	.....	.....	79.4	+ 0.8	100	10	90	61	5	69	26	.....	.....	5.95	— 0.2	13	.....	.....	.....	.....	...	10	16	5	...	80.4	1892	76.5	1889
Augusta	209	23	29.85	30.07	+ .04	79.0	— 1.0	97	15	88	62	6	70	23	70	81	7.39	+ 2.6	16	2,592	ne.	16	s.	3	8	14	9	5.3	83.7	1878	76.1	1875
Savannah	98	24	29.95	30.05	+ .02	81.2	+ 1.4	99	11	92	67	18	72	30	73	84	7.28	— 0.2	21	4,534	sw.	38	n.	11	8	17	6	4.8	84.7	1878	77.8	1889
Jacksonville	43	23	30.01	30.06	+ .04	82.2	+ 0.7	96	11	92	68	21	72	25	72	81	9.24	+ 2.6	19	4,840	sw.	30	se.	10	4	17	10	6.2	82.8	1878	78.8	1874
Florida Peninsula.						81.6	— 0.8										4.66	— 1.5												
Jupiter	28	7	30.05	30.08	.....	80.8	— 0.9	91	14	87	68	3	75	16	74	84	1.54	— 4.8	9	4,318	s.	26	sw.	2	17	8	6	4.4	81.9	1888	79.9	1889
Key West	22	24	30.06	30.08	+ .07	83.6	— 0.5	91	20	89	68	4	79	18	73	72	4.38	— 0.8	8	4,102	se.	35	sw.	4	6	21	4	5.3	85.6	1878	81.2	1889
Tampa	36	15	30.04	30.08	.....	81.4	— 0.1	92	17	89	69	9	74	21	73	81	7.16	— 2.6	20	3,688	w.	30	n.	9	5	21	5	5.4	83.7	1883	80.4	1889
Titusville	44	8	30.04	30.08	.....	80.5	— 0.5	95	20	89	68	21	72	21	73	83	5.33	+ 1.8	17	6,090	w.	38	w.	21	9	22	0	4.4	81.8	1891	79.4	1889
Eastern Gulf States.						79.1	— 0.8										6.04	+ 0.4												
Atlanta	1,131	16	28.90	30.07	+ .03	76.4	— 0.1	94	14	84	60	6	68	23	67	80	3.70	— 0.8	16	5,354	w.	34	nw.	15	6	9	16	6.6	78.5	1888	73.4	1879
Pensacola	56	15	29.96	30.02	+ .01	79.0	— 1.1	90	16	86	69	22	74	16	73	83	13.67	+ 4.9	17	6,465	sw.	52	se.	7	10	8	13	5.7	81.6	1887	78.8	1882
Mobile	57	24	29.98	30.04	+ .03	80.2	— 0.3	91	2	88	69	23	73	19	72	86	4.49	— 2.3	22	4,954	w.	36	se.	8	3	22	6	6.0	83.7	1874	78.2	1879
Montgomery	257	22	29.78	30.05	+ .04	79.4	— 0.4	97	14	88	64	6	70	27	71	83	4.76	+ 0.9	17	3,845	w.	26	nw.	14	1	18	12	6.6	83.0	1878	77.1	1879
Meridian	358	....	29.66	30.04	.....	76.7	.....	93	14	86	63	*	67	26	70	85	6.13	.....	15	2,898	sw.	24	sw.	21	2	16	13	6.8	....	.....	.....	.....
Vicksburg	254	23	29.75	30.01	— .01	78.5	— 2.2	94	13	87	65	5	70	20	70	83	2.29	— 1.4	11	3,142	sw.	28	n.	16	12	18	1	3.9	84.3	1872	76.6	1875
New Orleans	54	24	29.98	30.04	+ .04	80.5	— 1.0	92	12	88	71	13	74	17	72	79	7.32	+ 1.1	15	4,084	sw.	30	ne.	13	16	13	2	3.5	83.8	1874	79.1	1875
Port Eads	.....	.....	.....	.....	.....	81.3	.....	91	22	86	68	23	76	21	73	77	7.04	.....	9	5,198	sw.	42	nw.	22	4	24	3	5.0	.....	.....	.....	.....
Western Gulf States.						79.4	— 1.7										6.78	+ 3.2												
Shreveport	249	23	29.75	30.02	+ .02	78.8	— 3.4	94	13	88	61	5	70	24	71	82	5.87	+ 3.8	14	3,028	se.	35	ne.	21	4	16	11	6.2	87.2	1874	78.8	1894
Fort Smith	492	13	29.52	30.03	+ .06	78.8	+ 0.1	104	14	91	54	6	67	33	66	80	3.74	— 0.1	10	3,564	e.	36	ne.	21	16	9	6	3.8	80.0	1888	76.2	1884
Little Rock	302	16	29.71	30.02	+ .02	78.1	— 1.4	98	14	86	60	6	70	26	69	80	6.50	+ 2.5	12	3,882	ne.	26	se.	30	8	11	12	6.0	84.3	1881	75.2	1879
Corpus Christi	20	8	29.99	30.01	+ .01	80.6	— 0.9	90	22	85	70	25	76	16	76	88	7.65	+ 4.1	9	7,983	se.	25	se.	3	2	17	12	6.8	82.2	1887	80.5	1891
Galveston	42	24	30.01	30.05	+ .06	80.2	— 2.6	92	14	85	70	25	76	16	73	82	9.49	+ 4.0	19	5,502	sw.	30	nw.	23	11	13	7	5.0	85.1	1871	80.2	1894
Palestine	511	13	29.51	30.05	+ .04	79.4	— 1.8	96	*	89	58	6	70	26	70	84	5.45	+ 3.0	13	3,260	sw.	26	nw.	25	4	19	8	6.1	81.8	1889	77.7	1882
San Antonio	679	16	29.33	30.04	+ .06	80.0	— 2.2	95	22	89	63	6	71	26	66	67	8.55	+ 4.9	11	3,771	se.	22	se.	29	6	10	15	6.5	85.0	1877	78.7	1880
Ohio Val. & Tenn.						76.1	+ 1.8										2.96	— 0.9												
Chattanooga	762	16	29.27	30.05	+ .02	77.6	+ 1.1	98	13	86	63	6	69	26	67	76	2.96	— 1.3	13	4,265	w.	38	nw.	15	6	13	12	6.2	80.0	1881	73.0	1879
Knoxville	980	24	29.03	30.04	.00	70.1	+ 1.4	96	14	86	59	6	66	28	66	77	4.79	+ 0.4	12	3,013	ne.	35	sw.	15	6	11	14	6.3	78.3	1871	70.4	1875
Memphis	330	24	29.69	30.04	+ .03	78.7	+ 0.2	97	*	88	60	5	70	25	69	79	5.11	+ 1.3	13	3,837	ne.	36	se.	17	13	8	10	4.6	83.7	1881	74.7	1875
Nashville	553	24	29.45	30.02	+ .02	79.1	+ 2.6	103	14	89	60	5	69	29	65	69	2.43	— 1.2	8	2,653	w.	37	sw.	22	11	12	8	5.0	83.1	1881	73.9	1875
Lexington	989	9	28.99	30.01	.....	76.0	+ 3.1	97	10	86	54	*	66	27	61	64	3.67	— 0.4	9	6,315	sw.	36	sw.	1	11	12	8	4.8	70.0	1894	71.2	1875
Louisville	525	23	29.47	30.02	+ .01	78.6	+ 3.1	99	10	90	54	4	67	32	60	61	3.57	— 0.2	7	4,658	n.	32	nw.	11	15	11	5	4.4	81.1	1881	72.9	1883
Indianapolis	760	24	29.23	30.02	— .01	74.8	+ 2.5	99	9	87	50	4	63	33	57	61	1.66	— 1.9	9	3,396	n.	30	n	11	11	15	5	4.8	79.0	1881	70.0	1885
Cincinnati	628	24	29.37	30.03	+ .01	76.7	+ 2.2	96	9	87	56	4	66	30	59	61	1.98	— 2.1	8	4,052	ne.	30	nw.	18	18	12	1	3.3	79.5	1881	71.2	1875
Columbus	868	17	29.14	30.05	+ .04	72.2	+ 0.7	96	9	84	50	4	61	31	57	64	2.64	— 0.8	7	4,427	ne.	25	nw.	18	11	15	5	4.5	75.2	1881	69.5	1883
Pittsburg	820	24	29.17	30.03	+ .01	73.6	+ 1.6	93	8	84	51	5	63	30	55	58	0.43	— 3.0	5	3,445	n.	20	sw.	2	14	13	4	4.3	74.4	1881	69.3	1874
Parkersburg	638	7	29.37	30.04	.....	73.8	+ 1.1	95	9	86	51	5	61	34	62	72	3.59	— 0.4	10	2,798	e.	30	e.	2	10	9	6	4.2	73.8	1894	70.0	1890
Lower Lake Region.						68.6	+ 0.1										0.59	— 2.4												
Buffalo	690	24	29.29	30.02	+ .03	67.1	— 0.1	82	24	75	51	29	59	28	56	68	0.56	— 2.6	6	5,973	sw.	33	w.	3	6	23	2	5.2	73.3	1872	64.7	1885
Oswego	335	24	29.64	30.00	.00	65.8	— 1.2	84	8	73	50	29	58	29	54	66	0.90	— 1.5	8	6,515	s.	31	nw.	29	13	10	8	4.1	73.0	1872	63.2	1885
Rochester	523	23	29.49	30.04	+ .04	67.6	+ 0.1	91	24	78	48	22	58	36	54	66	0.70	— 2.3	8	4,885	sw.	28	sw.	3	10	6	9	4.5	73.3	1870	63.8	1885
Erie	714	22	29.28	30.02	+ .02	69.0	+ 0.5	88	29	77	52	22	61	30	55	64	0.54	— 2.8	6	5,973	s.	22	ne.	20	10	12	9	4.9	72.8	1876	65.4	1885
Cleveland	740	24	29.25	30.03	+ .02	68.6	+ 0.1	92	1	76	49	22	61	33	56	65	1.05	— 2.1	3	6,804	se.	36	s.	1	15	8	8	4.6	73.8	1872	65.8	1885
Sandusky	629	18	29.37	30.03	+ .02	70.8	+ 0.3	93	8	78	54	5	63	28	57	66	0.23	— 3.2	3	4,754	e.	25	nw.	2	3	17	11	6.4	74.6	1877	67.5	1885
Toledo	674	24	29.33	30.03	+ .03	70.2	+ 0.7	93	8	80	49	4	60	29	55	64	0.60	— 2.2	3	5,548	e.	28	w.	12	12	10	9	4.6	74.6	1872	66.9	1885
Detroit	724	24	29.20	30.01	— .01	69.4	+ 0.7	92	7	79	47	4	60	28	54	64	0.16	— 2.8	2	5,644	sw.	30	w.	29	15	10	6	4.6	74.1	1881	66.6	1875
Upper Lake Region.						65.5	+ 0.3										1.34	— 1.7												
Alpena	609	22	29.38	30.02	+ .03	62.4	— 0.1	85	14	72	44	*	53	29	54	76	1.53	— 1.9	7	5,486	se.	27	e.	1	8	19	4	5.4	67.2	1878	59.1	1885
Grand Haven	628	24	29.35	30.02	+ .03	66.2	+ 0.7	84	1	76	47	31	56	34	55	72	0.68	— 2.3	4	5,557	nw.	37	nw.	1	10	17	4	4.7	71.1	1881	60.8	1885
Marquette	734	24	29.24	30.01	+ .02	61.2	— 0.3	88	23	70	42	21	53	32	52	74	1.78	— 1.3	7	6,722	n.	44	sw.	17	13	10	8	4.7	69.5	1876	58.0	1885
Port Huron	639	21	29.35	30.03	+ .04	66.8	+ 0.8	92	7	76	43	22	57	37	55	70	0.07	— 2.5	2	6,897	ne.	27	w.	2	17	6	8	4.2	70.5	1878	63.0	1885
Sault Ste. Marie	642	7	29.32	30.00	.....	59.8	— 2.0	82	23	69	42	22	50	36	52	83	4.72	+ 2.0	11	4,457	nw.	26	nw.	3	3	16	12	6.7	64.2	1892	58.6	1890
Chicago	824	24	29.17	30.03	+ .04	70.8	— 0.2	95	8	77	48	3	64	26	56	64	0.60	— 2.4	5	10,588	ne.	43	se.	11	9	18	4	4.6	75.0	1881	67.6	1890
Milwaukee	673	24	29.32	30.02	+ .02	69.1	+ 1.0	97	8	77	47	3	61	32	58	72	0.29	— 2.6	4	6,423	ne.	29	nw.	1	10	11	10	5.7	71.4	1878	63.1	1885
Green Bay	617	8	29.38	30.04	+ .03	68.0	+ 1.6	93	8	79	46	4	57	34	53	63	1.34	— 1.7	7	5,351	se.	30	ne.	9	5	20	6	5.6	68.0	1894	64.6	1890
Duluth	656	24	29.30	30.00	+ .04	64.9	+ 1.6	90	26	73	50	21	57	34	54	72	1.08	— 2.8	5	4,251	e.	23	ne.	8	16	13	2	3.5	70.3	1878	60.7	1890
North Dakota.						69.1	+ 3.3										1.10	— 1.0												
Moorhead	935	14	29.00	29.99	+ .05	68.2	+ 3.7	94	26	82	41	3	54	42	55	67	1.08	— 1.7	7	6,020	n.	42	se.	5	18	10	3	3.0	68.7	1882	60.2	1885
Saint Vincent	804	14	29.15	30.00	+ .07	65.6	+ 2.4	92	*	82	38	15	50	45	55	78	2.18	— 0.1	7	4,844	n.	44	nw.	21	12	16	3	3.9	65.9	1881	58.3	1885
Bismarck	1,681	20	28.25	29.98	+ .06	71.7	+ 3.8	100	*	87	43	24	56	43	52	58	0.42	— 1.8	8	6,059	e.	36	ne.	13	20	10	1	3.0	71.7	1894	62.3	1885
Williston	1,874	16	28.02	29.94	+ .04	70.8	+ 3.3	94	21	86	43	11	56	41	45	44	0.73	— 0.6	3	5,895	se.	42	nw.	5	12	12	7	5.4	70.8	*	61.9	1885
Upper Miss. Valley.						70.3	+ 3.1										1.29	— 1.9												
Minneapolis	.....	.....	.....	.....	.....	72.3	.....	96	8	84	49	3	60	33	.....	.....	0.38	.....	4	.....	n.	.....	.....	...	7	17	7	.....	.....	.....	.....	.....
Saint Paul	850	24	29.12	30.01	+ .04	72.2	+ 3.7	96	8	84	48	3	60	31	54	60	0.36	— 3.1	5	4,154	nw.	26	nw.	1	15	11	5	3.8	72.9	1881	65.0	*
La Crosse	720	22	29.27	30.02	+ .04	72.3	+ 3.8	101	8	85	44	3	60	33	55	60	0.35	— 3.4	3	4,024	s.	18	n.	2	20	8	3	3.4	74.5	1881	65.8	1885
Davenport	613	23	29.37	30.01	+ .01	74.6	+ 3.3	98	9	86	49	3	63	29	57	61	2.02	— 1.7	3	4,752	sw.	28	n.	14	9	17	5	4.8	78.1	1873	68.0	1885
Des Moines	869	17	29.11	30.02	+ .04	76.0	+ 4.0	100	9	89	47	4	63	36	55	56	1.89	— 1.6	4	4,204	sw.	25	w.	14	25	6	0	2.3	78.1	1878	68.7	1884

TABLE I.—*Climatological data for Weather Bureau Stations, August*, 1894—Continued.

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.									Humidity and precipitation.				Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Mean temperature data since opening of station.			
			Mean pressure, 8 a. m. and 8 p. m. + 2.	Mean reduced.	Departure from normal.	Mean max. and min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Direction.	Date					Highest for month.	Year.	Lowest for month.	Year.
Up. Miss. Val.—Con.																															
Dubuque	.....	22	.....	.....	.....	74·2	+ 3·9	100	8	87	46	3	61	33	.....	.....	1·32	— 2·4	3	.....	n.	....	.....	...	25	0	6	....	74·5	1881	66·4	1885
Keokuk	613	24	29·38	30·01	+ ·02	76·9	+ 3·6	100	9	89	52	4	65	33	58	60	0·51	— 2·5	5	3,893	sw.	24	sw.	10	22	7	2	2·2	79·2	1881	70·0	1885
Cairo	359	24	29·64	30·01	+ ·02	78·0	+ 1·5	100	13	88	58	5	68	29	65	73	1·68	— 1·2	9	4,084	s.	39	nw.	14	17	10	4	3·6	82·8	1881	73·6	1875
Springfield, Ill.	644	16	29·36	30·03	+ ·01	74·8	+ 2·1	96	11	86	52	4	63	30	60	65	1·86	— 0·5	6	4,967	sw.	36	n.	1	16	8	7	4·0	78·5	1881	70·5	1883
Hannibal	534	....	29·46	30·01	.....	76·0	.....	100	14	88	49	4	64	36	60	63	1·03	.....	7	4,551	e.	38	nw.	17	15	13	3	4·0	.....	.....	.....	.....
Saint Louis	571	24	29·43	30·02	+ ·03	78·6	+ 2·3	100	14	88	60	4	69	30	63	66	1·66	— 0·9	6	5,940	n.	36	sw.	1	20	5	6	3·0	82·5	1881	72·8	1883
Missouri Valley.						76·3	+ 4·0										0·60	— 3·1													
Columbia	.....	...	.....	.....	.....	78·7	.....	105	10	94	44	4	63	42	.....	.....	1·29	.....	6	3,265	se.	36	s.	13	18	8	5	3·5	....	....	.....	....
Kansas City	963	7	29·04	30·03	+ ·04	78·3	+ 3·6	100	11	90	55	4	67	28	59	58	0·13	— 4·3	1	4,509	s.	24	ne.	20	20	10	1	2·5	78·3	1894	73·2	1893
Springfield, Mo.	1,336	8	28.66	30·04	+ ·04	75·9	+ 0·6	97	12	86	55	4	66	28	61	67	1·75	— 2·7	6	5,132	s.	30	ne.	21	15	13	3	3·2	75·9	1894	72·5	1882
Topeka	.....	8	.....	.....	.....	78·6	+ 4·9	102	11	92	50	4	65	35	.....	.....	0·42	— 4·8	3	.....	se.	.....	.....	...	22	9	0	....	78·6	1894	72·2	1889
Omaha	1,123	24	28.86	30·01	+ ·02	77·8	+ 5·3	99	10	90	53	3	66	31	55	51	0·36	— 3·0	4	4,789	s.	36	nw.	16	17	13	1	3·6	80·2	1881	69·9	1885
Valentine	2,613	9	27·33	29·95	·00	74·6	+ 5·6	98	9	89	45	25	60	40	51	51	0·33	— 1·1	4	7,210	s.	48	ne.	16	15	14	2	4·1	74·6	1894	67·3	1887
Sioux City	1,165	....	28.79	29·98	.....	75·2	.....	102	8	88	47	3	62	37	56	57	1·68	.....	7	6,493	s.	32	n.	15	22	8	1	2·3	.....	.....	.....	.....
Pierre	1,470	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	76·1	1874	66·0	1885
Huron	1,310	14	28.62	29·98	+ ·03	72·8	+ 1·8	99	8	89	44	3	57	45	51	55	0·61	— 2·5	6	8,891	se.	52	s.	5	17	8	6	3·8	72·8	1894	64·0	1885
Northern Slope.						70·9	+ 2·7										0·57	— 0·8													
Havre	2,477	15	27·39	29·90	— ·01	69·6	+ 3·3	99	24	86	43	12	53	49	42	46	0·48	— 1·1	5	4,645	sw.	41	sw.	6	18	12	1	3·0	70·8	1882	62·4	1880
Miles City	2,374	17	27·49	29·88	.....	75·4	+ 3·7	100	26	90	52	2	66	43	45	40	0·40	— 0·6	3	4,363	se.	36	e.	8	24	6	1	1·6	77·1	1878	64·3	1883
Helena	4,108	15	25·92	29·98	+ ·08	70·4	+ 4·4	95	25	83	48	29	58	35	37	38	0·40	— 0·3	7	5,675	sw.	36	sw.	15	19	8	4	3·3	71·4	1882	63·0	1887
Rapid City	3,280	9	26·69	29·94	+ ·03	73·4	+ 3·2	95	28	88	47	3	59	38	46	43	0·35	— 1·2	10	6,038	w.	36	nw.	21	13	15	3	3·9	73·4	*	66·2	1888
Cheyenne	6,105	24	24.17	29·96	+ ·05	66·8	+ 1·8	89	12	81	44	26	52	39	45	54	2·17	+ 0·6	6	6,281	nw.	36	s.	14	13	15	3	4·1	68·1	1889	61·1	1884
Lander‡	5,377	13	24.76	29·99	.....	66·8	— 0·3	90	12	85	42	13	49	44	43	50	0·11	— 0·6	3	2,882	sw.	36	sw.	31	8	18	5	5·0	72·2	1881	63·8	*
North Platte	2,841	20	27·14	29·99	+ ·03	74·2	+ 3·2	99	13	89	46	25	60	39	54	57	0·17	— 2·3	4	6,042	se.	38	w.	10	14	17	0	3·6	77·4	1881	67·2	1885
Middle Slope.						73·7	+ 1·0										1·20	— 1·6													
Colorado Springs	6,098	11	24.18	30·05	.....	65·2	— 2·1	85	7	78	43	27	52	38	46	58	1·38	— 1·2	10	5,218	n.	35	nw.	8	11	16	4	4·6	70·8	1889	64·1	1893
Denver	5,287	23	24.89	29·98	+ ·09	71·2	+ 1·7	94	12	85	49	3	57	36	44	46	1·86	+ 0·3	12	4,681	s.	30	ne.	15	10	18	3	4·4	72·8	1889	68·0	*
Pikes Peak	.....	18	18.10	.....	.....	36·2	.....	47	7	41	24	3	31	15	29	77	4·17	.....	17	8,998	ne.	50	ne.	23	1	17	13	7·0	42·4	1878	35·6	1884
Pueblo	4,734	7	25·38	30·00	.....	72·2	— 0·1	92	8	87	48	27	58	42	48	53	2·42	+ 0·4	10	4,733	nw.	36	nw.	13	15	13	3	4·0	75·8	1889	71·1	*
Concordia	1,410	10	28.57	30·00	+ ·02	78·4	+ 4·7	102	11	93	49	4	64	39	56	52	0·44	— 3·6	1	3,730	s.	18	s.	7	24	5	2	2·4	78·4	1894	71·1	1885
Dodge City	2,523	20	27·46	29·99	+ ·04	75·9	+ 0·6	97	18	89	52	4	63	34	54	53	0·15	— 3·0	5	7,051	s.	36	sw.	20	21	6	4	3·3	78·6	1881	71·7	1883
Wichita	1,356	7	28.60	29·99	.....	79·2	+ 1·4	100	19	92	53	4	67	33	57	54	0·94	— 2·8	3	4,009	s.	27	e.	21	22	4	5	3·2	79·2	1894	75·0	1893
Oklahoma	1,239	....	28.76	30·03	.....	78·4	.....	100	15	90	55	5	66	33	62	65	1·95	.....	5	3,920	sw.	24	ne.	24	22	7	2	2·9	....	....	.....	....
Southern Slope.						.....	.....										.....	.....													
Abilene	1,749	9	28.24	30·02	+ ·05	76·4	— 4·3	94	*	85	61	6	68	25	64	74	6·79	+ 5·2	11	4,311	se.	30	n.	2	3	15	13	6·8	82·1	1886	76·4	1894
Amarillo	3,691	....	26·36	30·03	.....	71·0	.....	90	14	79	58	*	63	24	57	69	3·41	.....	13	8,437	s.	36	s.	12	9	8	14	5·9	....	....	.....	....
Southern Plateau.						78·6	— 1·0										0·32	— 1·2													
El Paso	3,813	17	26.22	29·97	+ ·04	77·7	— 2·8	96	15	88	61	27	67	29	53	50	0·64	— 1·4	9	6,261	ne.	49	ne.	21	7	19	5	5·1	83·8	1878	76·1	1880
Santa Fe	7,051	21	23·43	30·03	+ ·06	64·4	— 2·1	83	7	74	49	25	55	26	46	59	1·95	— 0·7	16	4,021	ne.	28	e.	20	7	18	6	5·8	70·9	1889	64·3	*
Tucson	2,390	10	27·48	29·87	.....	82·6	— 0·9	100	17	94	64	31	71	32	58	54	1·01	— 2·2	13	3,675	se.	34	sw.	21	10	12	9	5·4	87·8	1877	79·7	1876
Yuma	141	19	29.67	29·81	+ ·03	89·9	— 1·7	110	1	103	66	10	77	39	63	47	0·10	— 0·3	2	4,994	sw.	29	w.	1	15	16	0	3·0	92·7	1877	88·6	1881
Middle Plateau.						71·5	+ 0·8										0·32	0·0													
Carson City	4,720	7	25·34	29·95	.....	67·4	0·0	90	25	83	37	12	52	42	36	35	0·03	— 0·2	3	.....	.....	....	.....	...	28	1	2	1·6	68·2	*	66·2	1890
Winnemucca	4,340	16	25·67	29·90	+ ·04	71·6	+ 1·9	96	25	88	44	8	55	43	28	24	0·06	0·0	1	6,140	sw.	40	se.	9	14	13	4	3·6	74·0	1878	67·0	1881
Salt Lake City	4,345	21	25·68	29·92	+ ·04	75·4	+ 0·5	95	3	88	56	13	63	33	46	40	0·87	+ 0·1	6	4,358	se.	30	w.	6	14	13	4	3·7	77·6	1878	72·4	1876
Northern Plateau.						74·1	+ 2·8										0·09	— 0·2													
Baker City	3,430	6	26.48	29·90	.....	69·0	.....	94	20	84	45	31	54	39	44	46	0·55	.....	6	3,759	nw.	28	nw.	11	19	7	5	3·1	69·0	1894	64·5	1890
Idaho Falls	4,742	5	25·30	29·94	.....	69·1	.....	95	27	88	42	12	56	48	39	46	0·58	.....	8	5,709	nw.	38	e.	22	4	16	11	5·5	70·5	1882	64·5	1881
Spokane	1,930	14	27·98	29·96	+ ·05	71·4	+ 3·1	98	23	87	47	9	56	41	39	40	0·15	— 0·2	3	3,081	s.	24	ne.	28	18	8	5	3·3	71·4	*	61·9	1881
Walla Walla	1,018	9	28.90	29·94	+ ·02	76·8	+ 2·4	108	23	91	48	29	62	41	45	36	0·03	— 0·3	3	3,465	s.	25	w.	12	24	7	0	2·8	76·8	1894	72·2	*
N. Pac. Coast Region.						63·3	+ 2·5										0·26	— 1·0													
East Clallam	.....	...	.....	.....	.....	57·9‖	.....	85‖	23	66‖	45	14	51	34‖	.....	.....	0·80	.....	3	.....	w.	.....	.....	...	17	3	11	.....	.....	.....	.....	.....
Fort Canby	179	11	29.83	30·02	— ·02	61·4	+ 2·5	89	27	67	51	10	53	27	55	85	0·15	— 1·1	5	6,727	nw.	38	se.	23	9	12	10	5·6	62·6	1891	56·8	1887
Neah Bay	.....	10	.....	.....	.....	60·0	+ 1·0	82	28	69	44	17	51	26	.....	.....	0·68	— 2·0	2	.....	sw.	.....	.....	...	13	5	13	....	60·0	1894	58·2	1892
Olympia	.....	18	.....	.....	.....	65·0	+ 3·4	90	2	80	44	5	59	42	.....	.....	0·13	— 0·6	3	.....	nw.	.....	.....	...	20	6	5	....	65·7	1884	59·7	1880
Port Angeles	29	10	30.01	30·04	+ ·03	59·3	+ 2·5	81	23	67	45	14	52	27	52	80	0·36	— 0·5	3	3,645	w.	24	w.	3	21	9	1	2·3	59·3	*	55·1	1887
Port Crescent	.....	....	.....	.....	.....	60·6	.....	93	28	72	42	4	50	42	.....	.....	0·47	.....	2	.....	w.	.....	.....	...	27	3	1	.....	.....	.....	.....	.....
Pysht	.....	.....	.....	.....	.....	60·6	.....	83	21	72	43	14	49	34	.....	.....	0·49	.....	3	.....	w.	.....	.....	...	26	1	4	.....	.....	.....	.....	.....
Seattle	119	....	29.88	30·00	.....	65·9	.....	86	2	76	50	1	56	31	54	70	0·04	.....	2	2,249	w.	15	nw.	1	19	10	2	3·4	.....	.....	.....	.....
Tatoosh Island	86	10	29.96	30·06	+ ·02	57·0	+ 1·0	80	28	62	47	9	52	26	53	87	0·71	— 2·1	10	7,153	sw.	53	e.	23	8	7	16	6·5	57·0	1894	54·7	1887
Astoria	.....	10	.....	.....	.....	65·2	+ 3·6	88	27	72	51	9	58	24	.....	.....	0·07	— 0·6	2	.....	w.	.....	.....	...	17	9	5	....	65·2	*	59·2	1889
Portland	157	23	29.84	30·01	— ·01	69·2	+ 3·2	94	27	81	48	5	58	35	54	64	T.	— 0·6	0	5,295	nw.	24	ne.	29	22	6	3	2·5	70·0	1891	62·6	1881
Roseburg	523	17	29.40	29·95	— ·07	69·4	+ 2·6	104	27	84	47	8	55	44	52	62	0·00	— 0·3	0	2,122	nw.	15	nw.	31	21	8	2	2·2	70·4	1891	62·5	1881
Mid. Pac. Coast Reg.						68·3	+ 0·6										0·01	0·0													
Eureka	64	8	29.96	30·02	·00	57·3	+ 1·4	79	27	62	48	9	53	25	54	90	0·04	— 0·1	1	3,788	n.	24	nw.	6	6	10	15	6·4	59·4	1891	54·5	1887
Red Bluff	342	18	29·54	29·89	+ ·03	82·1	+ 1·1	110	26	98	60	*	66	40	49	37	T.	0·0	0	3,529	s.	23	s.	1	26	5	0	1·3	83·8	*	76·4	1881
Sacramento	71	18	29·81	29·88	+ ·01	74·6	+ 1·0	108	27	91	50	12	58	43	54	59	T.	0·0	0	6,558	s.	24	sw.	5	28	3	0	0·9	76·8	1888	68·2	1881
San Francisco	153	24	29·81	29·97	+ ·03	59·2	— 1·1	91	26	65	49	16	53	29	53	87	0·00	0·0	0	10,335	sw.	38	sw.	2	14	11	6	4·4	61·8	1891	56·3	1887
Point Reyes Light	.....	....	.....	.....	.....	54·4	.....	84	26	59	42	17	50	24	.....	.....	0·00	.....	0	.....	nw.	.....	.....	...	4	1	26	....	.....	.....	.....	.....
S. Pac. Coast Region.						73·0	— 1·5										0·02	0.0													
Fresno	338	7	29.50	29·85	+ ·01	82·0	+ 0·8	109	27	99	55	10	65	40	48	35	T.	0·0	0	5,091	nw.	18	nw.	23	26	5	0	1·7	83·6	1891	80·8	1890
Los Angeles	330	18	29·59	29·94	+ ·03	70·0	— 2·5	97	26	82	52	12	58	32	58	78	0·01	0·0	1	2,714	w.	17	se.	25	9	22	0	3·8	75·3	1885	68·6	1880
San Diego	93	23	29·86	29·96	+ ·04	67·0	— 2·7	90	27	72	55	7	62	22	60	82	0·04	— 0·1	1	3,577	w.	23	s.	27	23	5	3	3·2	72·4	1891	65·8	1880
San Luis Obispo	234	....	29·72	29·97	.....	65·4	.....	98	26	79	40	2	52	42	51	72	T.	.....	0	3,748	sw.	20	sw.	11	24	6	1	2·7	....	.....	.....	....

NOTE.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record. *Two or more directions, dates, or years. †Received too late to be considered in departures, etc. ‡Normals of temperature and precipitation and extremes of temperature combined with Fort Washakie records. ‖All temperature and precipitation normals and extremes of temperature are obtained from Fort Buford records.

TABLE II.—*Meteorological record of voluntary and other co-operating observers, August*, 1894.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Alabama.	°	°	°	*Ins.*
Alco	94	67	79.4	.....
Ashville	96[c]	70[c]	85.4[c]	.....
Bermuda *†[b]	94	64	78.0	5.83
Carrollton*†[1]	88	68	76.6	10.43
Citronelle†	89	69	78.6	7.61
Clanton†	93	63	78.9	8.19
Collirene*[1]	92	66	80.4	6.70
Cordova†	.....	.....	.....	7.95
Daphne†	101	67	81.2	5.84
Decatur*†	98	60	76.9	5.13
Demopolis†	.....	.....	.....	4.22
Elba†	90	68	76.6	4.66
Eufaula *a*†	95	68	81.4	5.50
Eufaula *c*†	.....	.....	.....	3.88
Evergreen†	97	66	80.4	4.96
Florence *a*†	.....	.....	.....	10.36
Florence *b*†	97	62	75.7	10.60
Fort Deposit†	97	64	79.8	4.37
Gadsden†	98	65	79.2	4.53
Greensboro†	93	64	77.1	7.37
Healing Springs*†	93	62	76.3	7.51
Highland Home*†	97	65	78.4	4.76
Livingston†	98	65	79.1	5.34
Lock No. 4	.....	.....	.....	7.05
Madison Station*†	100	62	77.8	4.12
Maple Grove†	99	58	78.7	5.13
Marion†	94	66	79.4	12.47
Mount Willing†	97	65	79.6	5.30
Newbern†	92	68	79.4	12.00
Newburg†	103	58	76.8	5.92
Newton†	91[c]	64[c]	78.0[c]	7.07
Opelika†	94	60	79.4	5.03
Oxanna*†	98	64	76.4	4.40
Pine Apple†	97	62	78.6	4.77
Pushmataha†	.....	64	.....	6.39
Rock Mills†	95	63	77.4	6.91
Scottsboro†	103	54	76.8	2.77
Selma†	.....	.....	.....	13.13
Starlington*†[1]	95	68	78.1	2.50
Sturdevant†	.....	.....	.....	4.03
Talladega†	99	66	78.2	8.40
Tallassee Falls†	.....	.....	.....	9.20
Thomasville†	96	64	78.6	6.75
Tuscaloosa†	98	63	79.5	6.64
Tuscumbia†	100	63	78.7	6.85
Union†	94[d]	63[d]	78.8[d]	8.43
Union Springs†	96	64	79.6	8.84
Valley Head†	96	59	75.8	7.60
Wetumpka	.....	.....	.....	5.99
Wilsonville†	.....	.....	.....	17.35
Alaska.				
Killisnoo†	69	42	54.0	5.60
Arizona.				
Ariz. Canal Co. Dam	109	72	89.6	0.92
Benson *a*†	105	68	84.4	2.03
Benson *b*†	100	51	78.9	2.58
Bisbee *†[1]	90	58	70.5	8.73
Buckeye†	107	61	86.6	2.90
Calabasas†	94	55	74.9	2.49
Casa Grande*†	109	68	91.0	0.81
Dragoon†	.....	.....	.....	4.78
Dragoon Summit*[b]	92	64	79.8	5.01
Dudleyville†	102	68	82.8	1.79
Eagle Pass*[b]	.....	64	72.6	2.22
Farleys Camp[2]	.....	.....	81.4	1.90
Flagstaff†	83	48	65.5	2.31
Fort Apache	94	48	70.6	5.01
Fort Bowie†	95	54	73.6	4.80
Fort Grant	95	52	73.8	1.98
Fort Huachuca	92	53	70.8	5.01
Gila Bend*[b]	110	77	93.0	0.00
Globe†	98	63	81.0	3.06
Keams Canyon†	94	50	70.6	1.01
Lochiel†	.....	.....	.....	3.26
Maricopa*[b]	116	80	93.5	1.96
Mount Huachuca†	91	56	72.7	3.83
Natural Bridge†	.....	.....	.....	2.49
Navajo*[12]	.....	58	65.6	.....
Oracle†	97	60	77.1	4.10
Palomas†	110	59	87.6	0.65
Pantano*[b]	98	70	81.6	5.29
Parker†	116	61	92.0	1.80
Peoria†	108	71	88.4	0.60
Phœnix *b*†	107	68	87.2	0.79
Red Rock *†[b]	108	71	89.3	4.45
Reymert†	103	64	83.0	3.36
Rye†	109	60	82.4	2.16
San Carlos	107	61	82.6	2.06
San Simon*[b]	103	70	87.0	1.84
Show Low	.....	.....	.....	2.71
Signal†	109	65	87.9	3.47
Sulphur Spr'g Val†	.....	.....	.....	0.98
Texas Hill*[b]	115	79	94.9	0.00
Tucson *b*[b]	98	75	82.4	0.42
Walnut Ranch *†[1]	91	59	69.9	3.96
Whipple Barracks	93	51	71.2	3.88
Wilgus†	.....	.....	.....	0.67
Willcox*[b]	100	40	76.8	1.52
Yuma*[b]	112	80	92.4	0.01
Arkansas.				
Arkadelphia†	.....	.....	.....	4.25
Arkansas City†	.....	.....	.....	0.06
Bee Branch†	95[f]	54[f]	76.4[f]	5.45

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Arkansas—Cont'd.	°	°	°	*Ins.*
Blanchard Springs†	97	60	77.2	1.90
Brinkley†	102	57	80.4	7.58
Camden *a*†	.....	.....	.....	2.47
Camden *b*†	99	58	78.5	2.69
Cassville†	93	58	77.0	5.44
Clarksville	.....	.....	.....	1.89
Conway*[1]	96	58	76.3	3.66
Corning†	101	49	76.5	3.25
Dallas†	99	61	78.8	3.30
Dardanelle†	.....	.....	.....	5.25
Fayetteville†	100	47	76.2	5.41
Forrest†	97	59	79.2	5.96
Fulton†	.....	.....	.....	2.77
Gaines Landing†	.....	.....	.....	2.12
Hamburg	98[1]	60[1]	78.7[1]	6.14
Helena *a*†	.....	.....	.....	6.91
Helena *b*†	100	62	81.2	6.91
Hindsville†	.....	.....	.....	7.35
Hot Springs *a*	101	52	78.2	3.05
Hot Springs *b*	.....	.....	.....	4.50
Hot Springs (near)	.....	.....	.....	2.25
Keesees Ferry†	102	48	76.0	3.32
Kirby†	95	54	77.8	7.35
Lonoke*†	100	62	80.2	3.18
Luna Landing*[2]	92	65	78.6	2.30
Madding[2]	.....	.....	76.4	5.00
Malvern†	99	54	78.5	3.54
Monticello†	.....	.....	.....	5.20
Mount Ida†	95	54	75.8	4.37
Mount Nebo†	92	60	75.0	6.70
New Gascony*[1]	98[c]	66[d]	77.4[d]	8.43
Newport *a*†	.....	.....	.....	1.27
Newport *b*†	101	55	79.3	1.43
Newport *c*†	98	53	76.9	2.05
Ozark†	104	55	80.8	2.74
Pine Bluff†	101	60	79.5	5.15
Pocahontas†	101	52	76.8	4.59
Prescott†	100	58	80.5	18.01
Rison†	101	56	78.2	3.31
Rogers†	.....	.....	.....	2.62
Russellville†	99	55	79.3	6.25
Stuttgart†	97	58	78.4	5.36
Texarkana†	99	62	81.2	2.21
Washington†	94	60	77.0	3.78
Winslow†	90	61	74.8	4.74
California.				
Adin	100	43	70.0	0.04
Ager	106	50	77.0	0.00
Agnew	101	47	68.2	0.00
Anaheim*[2]	108	56	69.7	T.
Antioch*[2]	105	60	70.4	0.00
Aptos*[2]	85	50	64.3	0.00
Arlington Heights	107	48	74.8	0.03
Athlone*[2]	116	60	86.6	0.00
Auburn*[2]	106	60	81.9	T.
Bakersfield*[2]	109	65	85.9	0.00
Ballast Point L. H.	.....	.....	.....	0.04
Barstow†	106	58	83.6	0.34
Beaumont*[2]	105	57	78.6	0.00
Belmont*[2]	104	58	70.6	.....
Berendo*[2]	110	68	87.4	0.00
Berkeley	93	47	63.0	0.00
Bethany*[1]	100	56	74.8	T.
Bishop Creek*[2]	101	70	81.8	0.23
Boca*[2]	100	35	56.7	T.
Borden*[2]	110	63	83.4	0.00
Boulder Creek*[2]	104	46	66.5	0.00
Brentwood*[2]	107	58	77.4	0.00
Brighton*[2]	115	55	79.8	0.00
Byron*[2]	103	57	75.9	0.00
Caliente*[2]	103	62	80.9	0.00
Calistoga*[2]	110	52	75.5	0.00
Capitola*[2]	95	54	66.7	.....
Campo Seco	.....	.....	.....	0.00
C. Mendocino L. H.	.....	.....	.....	0.03
Castroville*[2]	83	54	65.6	0.00
Cedarville†	95	47	71.0	0.01
Centerville*[1]	108	60	69.2	0.00
Chico*[2]	110	60	79.5	0.00
Cisco*[2]	78	46	62.1	.....
Claremont†	103	47	71.6	0.08
Colfax*[2]	104	58	83.7	0.03
Colton*[2]	112	56	76.2	0.00
Colusa†	106	53	76.6	0.00
Corning*[2]	110	63	83.7	0.00
Crescent City†	81	45	58.8	0.13
Crescent City L. H.	.....	.....	.....	0.07
Crofton*[2]	103	50	80.4	0.08
Davisville *a*[2]	108	65	77.9	0.00
Davisville *b*	106	52	76.0	0.00
Deep Creek	.....	.....	.....	0.80
Delano*[2]	105	65	85.5	0.00
Delta*[2]	109	59	78.0	T.
Dinuba*[2]	107	72	87.1	0.00
Downey*[2]	105	58	72.8	0.00
Drytown	107	48	76.0	T.
Dunnigan*[2]	108	60	83.0	0.00
Dunsmuir*[2]	105	50	73.6	0.20
East Brother L. H.	.....	.....	.....	0.00
Edgwood*[2]	95	57	71.1	0.46
Edmanton*[1]	95	43	63.0	1.45
Eldorado*[2]	105	60	78.9	0.00
Elk Grove*[2]	101	60	77.0	0.00

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Elmira*[2]	110	60	78.7	0.00
El Verano*[2]	102	50	68.2	0.00
Emigrant Gap*[2]	90	50	67.7	0.00
Escondido	113	45	72.7	T.
Esparto*[2]	113	60	83.7	0.00
Evergreen	.....	.....	.....	0.00
Exeter*[2]	106	67	83.9	0.00
Fall Brook*[1]	109	51	68.9	0.18
Farmington*[2]	111	50	72.8	0.00
Felton*[2]	110	44	69.6	0.00
Fernando*[2]	108	47	72.1	0.00
Florence*[2]	91	61	71.3	0.00
Florin*[2]	108	56	72.4	0.00
Folsom City *a*[2]	110	65	82.6	0.00
Folsom City *b*[1]	108	64	78.8	0.03
Fort Ross	.....	.....	.....	0.00
Fremontville*[1]	104	52	67.0	T.
Fresno*[2]	108	66	83.2	0.00
Fruto*[2]	107	63	82.4	0.00
Galt*[2]	111	58	81.3	0.00
Georgetown†	97	54	75.4	0.20
Gilroy*[2]	108	53	67.1	0.00
Girard*[2]	95	64	74.6	0.00
Glen Ellen*[2]	106	50	68.9	0.00
Gofmans Station†	.....	.....	.....	0.00
Goshen*[2]	108	65	83.9	0.00
Grass Valley *a*	.....	.....	.....	0.03
Greenville*†[1]	103	37	65.6	0.51
Haywards*[2]	102	57	65.4	0.00
Healdsburg*[1]	110	52	67.2	0.00
Hollister*[2]	102	53	68.9	0.00
Hornbrook*[2]	100	60	79.7	0.00
Hueneme	.....	.....	.....	0.08
Humboldt L. H.	.....	.....	.....	0.00
Huron*[2]	108	65	86.4	0.00
Hydesville†	92	46	62.6	0.25
Independence†	100	52	77.2	0.51
Indio *a*[2]	114	80	90.0	0.00
Ione*[2]	108	62	78.6	0.00
Iowa Hill*[1]	100	62	76.4	0.51
Jackson	96	48	73.3	T.
Jolon	.....	.....	.....	0.05
Keeler*[2]	102	58	81.1	0.00
Keene*[2]	98	60	77.5	0.00
Kennedy Gold Mine	105	51	76.8	0.00
Kernville	.....	.....	.....	0.01
King City*[2]	114	48	72.9	0.00
Kingsburg*[2]	108	65	82.0	0.00
Knights Landing*[2]	106	58	78.5	0.00
Kono Tayee	99	58	77.6	T.
Lagrange*[2]	114	55	83.2	T.
La Porte*†[1]	88	48	61.5	0.17
Lathrop*[2]	108	61	77.4	0.00
Laurel*[2]	105	51	68.2	0.00
Lemoore *a*[2]	108	60	84.9	0.00
Lick Observatory†	92	55	71.4	T.
Lime Point L. H.	.....	.....	.....	0.00
Little Bear Valley	.....	.....	.....	0.31
L. Bear Val. (near)	.....	.....	.....	0.46
Livermore*[2]	105	50	71.1	0.00
Livingston*[2]	114	62	81.1	0.00
Lodi	104	50	73.4	T.
Long Beach*[2]	100	60	69.2	.....
Los Alamos	.....	.....	.....	T.
Los Angeles*[2]	104	60	75.2	0.00
Los Banos*[2]	106	60	81.5	0.00
Los Gatos *a*[2]	104	55	73.2	0.00
Los Gatos *b*	104	46	67.7	0.00
L. Holcomb Valley	.....	.....	.....	0.86
Mammoth Tank*[2]	110	80	94.6	0.06
Manzana*[1]	103	57	81.4	0.10
Mare Island L. H.	.....	.....	.....	0.00
Mariposa*[1]	102	60	78.8	T.
Martinez*[2]	98	48	64.2	0.00
Marysville*[2]	116	59	79.7	0.00
Mendota*[2]	111	59	83.7	0.00
Menlo Park*[2]	98	40	67.3	0.00
Merced*[2]	108	58	80.6	0.00
Middletown*†[1]	110	50	75.0	0.00
Mills College	.....	.....	.....	T.
Milton*[2]	113	60	78.6	0.00
Milton (near)*[1]	111	61	78.0	T.
Modesto*[2]	107	65	86.8	0.00
Mohave*[2]	107	70	89.0	0.00
Mokelumne Hill*[2]	.....	59	77.2	T.
Monson*[2]	105	70	86.0	0.00
Montague*[2]	101	65	80.4	0.00
Monterey*[2]	86	50	62.1	0.00
Monterey (Hotel del Monte)*[2]	84	50	60.4	.....
Morses House	.....	.....	.....	0.74
Mount Glenwood*[1]	108	62	82.2	0.00
Napa *a*[2]	106	43	66.3	0.00
Napa *b*	102	51	69.1	0.04
National City†	91	52	68.8	0.00
Needles†	110	70	92.4	0.14
Nevada City†	94	46	69.2	T.
New Almaden*[2]	106	55	70.9	0.00
Newark*[2]	98	56	68.4	0.00
Newcastle *a*†	105	52	76.8	T.
Newcastle *b*[2]	106	62	82.7	0.00
Newhall*[2]	110	52	77.3	.....
Newman*[2]	116	55	82.9	0.00
Niles*[2]	104	50	71.3	0.00

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Norwalk*[2]	108	59	73.1	0.00
Oakdale *a*[1]	108	59	78.5	T.
Oakdale *b*[2]	108	60	79.3	0.00
Oakland *b*[2]	98	51	61.0	0.00
Ogilby*[2]	114	80	97.1	0.00
Oleta*[1]	100	53	71.6	T.
Ontario *a*[2]	105	58	75.9	.....
Ontario *b*	106	50	75.2	T.
Orangevale†	107	50	76.5	0.00
Orland*[2]	116	65	83.9	0.00
Ormonde†	.....	.....	.....	0.37
Oroville *a*[2]	108	62	83.9	0.00
Oroville *b*	107	58	81.7	0.00
Pajaro*[2]	101	40	63.2	0.00
Palermo†	111	51	79.0	0.00
Palm Springs*[2]	117	84	96.4	0.00
Pasadena†	106	48	72.2	0.05
Paso Robles *a*[2]	106	52	77.9	.....
Paso Robles *b*	105	40	72.9	0.50
Petaluma*[1]	110	52	67.0	0.00
Piedras Blancas LH	.....	.....	.....	0.16
Pigeon Point L. H.	.....	.....	.....	0.00
Placerville *a*[2]	103	52	71.0	0.00
Placerville *b*	98	46	71.8	0.10
Pleasanton *a*[2]	107	52	70.3	0.00
Pleasanton *b*	104	42	69.1	T.
Pt. Ano Nuevo L. H.	.....	.....	.....	0.00
Point Arena L. H.	.....	.....	.....	0.00
Point Bonita L. H.	.....	.....	.....	0.00
Pt. Conception L. H.	.....	.....	.....	0.00
Point Fermin L. H.	.....	.....	.....	0.00
Pt. Hueneme L. H.	.....	.....	.....	0.16
Point Loma L. H.	.....	.....	.....	0.00
Point Montara L. H.	.....	.....	.....	0.00
Point Pinos L. H.	.....	.....	.....	0.00
Point Reyes L. H.	.....	.....	.....	0.00
Point Sur L. H.	.....	.....	.....	0.03
Pomona*[2]	109	57	73.5	0.00
Pomona (near)	110	52	78.7	0.00
Portersville*[2]	108	70	87.0	0.00
Port Los Angeles*[2]	80	59	65.5	0.00
Poway	.....	54	64.7	0.06
Puente*[2]	106	58	73.3	0.00
Ravenna*[2]	105	61	77.8	T.
Red Bluff*[2]	111	71	87.1	0.07
Redding *a*[2]	110	55	82.5	0.42
Redding *b*†	109	57	81.8	0.74
Reedley (near)*[1]	108	68	86.3	0.00
Redlands *a*	.....	.....	.....	0.09
Redlands *b*[2]	108	60	77.9	0.11
Represa	103	50	74.4	0.00
Rio Vista	106	52	74.6	T.
Riverside†	108	46	74.4	0.21
Rocklin*[2]	109	63	80.0	0.00
Roe Island L. H.	.....	.....	.....	0.00
Rosewood*[1]	110	53	79.0	T.
Sacramento *a*	97	45	68.6	T.
Sacramento *b*[2]	102	57	72.1	0.00
Sacramento *c*[2]	100	61	76.7	T.
Salinas*[2]	94	52	64.7	0.00
Salton*[2]	117	78	99.3	0.00
San Ardo *a*[2]	115	47	69.8	0.00
San Bernardino†	102	41	75.4	0.16
San Gabriel*[2]	102	60	75.2	0.33
Sanger Junction*[2]	110	70	84.4	0.00
San Jacinto†	105	46	70.5	0.03
San Jose *a*[2]	101	55	67.7	0.00
San Jose *b*	98	42	66.2	0.00
San Luis L. H.	.....	.....	.....	0.10
San Luis Obispo *a*	.....	.....	.....	0.00
San Luis Obispo *b*[2]	94	41	66.8	0.00
San Mateo*[2]	99	57	67.8	0.00
San Miguel*[2]	106	55	76.3	0.00
San Miguel Island†	89	50	60.4	0.00
San Pedro*[2]	94	63	72.8	0.00
Santa Ana*[2]	110	60	75.3	0.00
Santa Barbara *a*	90	54	65.9	T.
Santa Barbara *b*[2]	81	54	64.5	0.00
Santa Barbara L. H.	.....	.....	.....	0.00
Santa Clara *a*[2]	99	48	65.5	T.
Santa Clara *b*	108	44	70.5	0.00
Santa Cruz *a*[2]	98	55	64.1	0.00
Santa Cruz *b*†	101	46	65.4	T.
Santa Cruz L. H.	.....	.....	.....	0.00
Santa Margarita*[2]	100	50	68.5	0.00
Santa Maria	92	50	66.0	T.
Santa Monica *[2]	84	60	67.7	0.00
Santa Paula *a*[2]	96	56	67.3	0.00
Santa Paula *b*†	89[b]	46[b]	64.8[b]	0.02
Santa Rosa*[2]	106	52	68.0	0.00
Selma*[2]	105	65	82.4	0.00
Shasta Springs†	94	42	66.1	0.22
Shingle Springs*[2]	108	60	79.1	0.00
Sims*[2]	102	48	71.2	0.36
Sisson*[2]	100	40	69.3	1.15
Sneddens Ranch	.....	.....	.....	0.00
Soledad*[2]	106	52	64.9	T.
Sonoma*[2]	102	48	62.4	T.
South Vallejo*[2]	92	52	64.4	0.00
Spadra*[2]	110	58	74.4	0.00
Squirrel Inn	.....	.....	.....	0.62
Stanford Univer'y	101	46	67.6	0.00
Stockton *a*	103	50	73.0	0.00
Stockton *b*[2]	106	61	85.7	0.00
Suisun City*[2]	108	55	71.7	0.00

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Summerdale †	.....	.....	.....	0.01
Summit *[8]	78	49	62.0	.....
Susanville *†[1]	96	52	74.0	0.20
Sutter Creek *[5]	102	45	72.8	T.
Tehachapi *[8]	90	65	75.8	0.00
Tehama *[8]	108	67	83.0	0.25
Templeton *[8]	105	52	71.0	0.00
Towles *[8]	94	55	70.6	0.00
Tracy *[8]	104	58	74.2	0.00
Traver *[5]	106	70	86.6	0.00
Trinidad L. H.	.....	.....	.....	0.00
Tropico *[8]	102	56	68.9	T.
Truckee *[8]	92	50	65.6	0.00
Tulare *a* [8]	107	65	82.1	0.00
Tulare *b*	.....	.....	.....	0.00
Tulare *c*	118	54	83.6	0.00
Tunnel No. 2	.....	.....	.....	0.33
Turlock *a* [8]	110	60	85.2	0.00
Turlock *b* †	110	46	77.4	0.04
Ukiah †	103	46	71.6	0.00
Upper Lake	107	50	75.2	T.
Upper Mattole *[1]	102	50	66.6	0.00
Vacaville *a* [1]	110	59	76.3	0.00
Vacaville *b* [8]	110	58	77.4	0.00
Valley Springs *[8]	103	65	81.6	0.00
Ventura †	88	49	64.8	T.
Vina *[8]	110	68	86.1	0.00
Volcano Springs *[8]	120	80	98.9	T.
Walnut Creek	109	50	72.0	0.00
Wenrich Ranch	.....	.....	.....	0.00
Westley *[8]	108	64	81.1	0.00
Wheatland	108	52	77.2	0.14
Whittier *[8]	109	65	78.3	0.00
Williams *[8]	109	58	81.5	0.00
Willows *b* [8]	108	60	83.3	0.00
Wilmington *[8]	95	62	74.6	0.00
Winters *[8]	110	62	82.9	0.00
Wire Bridge *[5]	103	58	78.4	T.
Woodland *[6]	110	50	76.9	0.00
Yerba Buena L. H.	.....	.....	.....	0.00
Yreka †	101	45	72.1	0.41
Yuba City *[5]	106	64	80.7	0.00
Colorado.				
Abbott	.....	.....	.....	1.42
Akron †	97	50	72.8	0.50
Alma †	70	29	50.0	3.05
Avoca	.....	.....	.....	1.88
Boulder †	87	44	68.0	0.84
Box Elder	.....	.....	.....	2.53
Breckenridge †	76	27	51.4	2.20
Byers *[1]	100	46	70.9	.....
Canyon †	90	47	69.8	1.78
Castle Rock †	90	35	67.2	1.53
Climax *†[1]	61	28	41.8	3.21
Collbran	.....	.....	.....	0.53
Como (near) †	75	36	54.2	2.67
Cope †	98	49	75.4	0.87
Craig	.....	.....	.....	1.06
Deer Trail *[5]	92	56	75.4	1.75
Delta †	100	47	73.2	1.56
Divide Ex. Station	81	41	62.0	2.76
Downing †	93	40	68.3	2.01
Dumont	86	35	62.4	2.67
First View *[6]	98	56	74.2	0.59
Fleming	.....	.....	.....	0.50
Fort Collins †	92	40	68.3	1.53
Garnett	.....	.....	.....	2.07
Glen Eyrie †	79	46	64.4	1.23
Glenwood Sp'gs †	93	50	71.0	1.28
Gold Hill *[5]	85	44	64.0	1.87
Grand Junction †	96	57	76.5	0.64
Greeley	.....	.....	.....	0.11
Gunnison †	105	32	60.8	0.37
Holly †	.....	.....	.....	0.55
Hugo *[5]	98	60	78.9	1.50
Hugo (near) †	90	38	65.3	1.23
Husted †	93	39	66.2	2.32
Julesburg †	98	48	74.0	0.73
Kirk	.....	.....	.....	0.90
Kit Carson [k]	99	60	78.4	.....
La Jara †	85	43	64.5	1.79
Lake Moraine †	68	29	51.4	1.29
Lamar	103	46	75.4	0.45
La Porte	.....	.....	.....	1.64
Las Animas †	98	44	72.0	0.02
Lavender †	93	46	67.4	2.09
Lay *†[1]	100	50	74.0	0.10
Le Roy *†[1]	95	54	73.8	0.47
Leslie	.....	.....	.....	0.45
Loveland	.....	.....	.....	0.24
Manhattan	.....	.....	.....	0.77
Minneapolis †	100	48	74.2	1.23
Monte Vista	84	40	62.7	1.70
Moraine †	81	33	58.4	1.26
Pagoda (near) †	90	35	63.9	1.70
Paonia †	.....	.....	.....	2.81
Parachute †	96	49	73.4	0.33
Rangely	98	40	70.2	0.62
Red Cliff	.....	.....	.....	2.23
Rico	.....	.....	.....	2.32
River Bend *[8]	92	70	82.3	2.50
Rocky Ford †	100	42	78.0	0.25
Ruby †	.....	.....	.....	1.63
Saguache †	84	40	63.0	0.92
San Juan †	83	31[l]	56.4[l]	1.75

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Colorado—Cont'd.	°	°	°	*Ins.*
San Luis †	90	34	62.6	2.13
Seibert †	.....	.....	.....	0.83
Smoky Hill Mine †	83	40	63.1	1.85
Springfield †	.....	.....	.....	0.69
Spring Gulch †	.....	.....	.....	1.60
Stamford *[1]	80	31	50.8	4.10
Sunnyside	74	35	54.6	2.83
Surface Creek †	86	51	82.3	1.19
Thon †	94	45	69.2	3.52
Twin Lakes	.....	.....	.....	1.95
Vernon †	104	38	77.2	1.60
Wallet †	.....	.....	.....	0.24
Ward District	.....	.....	.....	1.32
Watkins *[1]	90	70	78.0	.....
Yuma	.....	.....	.....	0.70
Connecticut.				
Bridgeport *[1]	86	54	72.7	2.29
Canton	89	42	67.1	0.73
Colchester	86	43	67.4	1.07
Falls Village	.....	.....	.....	0.57
Greenfield Hill	.....	.....	.....	1.64
Hartford *b*	.....	.....	.....	2.44
Hartford *c*	84	48	68.6	.....
Lake Konomoc	.....	.....	.....	1.35
Lebanon	.....	.....	.....	1.51
Meriden	87	47	68.2	.....
Middletown	89	44	69.0	1.33
New Hartford *a* *†[1]	86	49	68.1	1.29
New Hartford *b*	.....	.....	.....	1.00
N. Grosvenor Dale	88	43	66.7	2.86
Norwalk	87	46	67.8	1.23
Southington *[1]	86	45	67.8	2.15
South Manchester	.....	.....	.....	2.84
Storrs	84	43	66.3	2.37
Thompson *[1]	83	43	65.6	.....
Voluntown †	85	38	67.2	2.22
Wallingford †	.....	.....	.....	2.23
Waterbury	85	48	68.0	2.41
West Simsbury	.....	.....	.....	0.75
Delaware.				
Dover †	87	54	71.3	4.01
Kirkwood [2]	.....	.....	71.0	.....
Milford	90	54	72.6	4.21
Millsboro	91	50	71.7	2.26
Newark	89	50	71.0	4.99
Seaford †	92	51	71.2	2.24
Wilmington †	93	53	75.0	5.78
District of Columbia.				
Dist'ing Reserv'r *[5]	91	62	74.4	1.71
Rec'ing Reserv'r *[5]	88	58	73.8	1.58
West Washington	94	54	74.4	2.21
Florida.				
Amelia †	94	70	81.1	7.10
Archer †	97	69	81.8	5.29
Avon Park †	97	70	82.6	8.96
Brooksville †	90	70	79.3	6.53
Clermont †	95	71	82.4	10.64
Eustis †	96	69	82.4	4.08
Fort Meade †	92	69	80.0	7.12
Gainesville †	98	70	82.8	7.23
Grasmere †	93	70	80.8	5.45
Green Cove Sp'gs †	93	67	79.8	9.37
Homeland †	92	66	79.9	10.13
Hypoluxo *†[1]	92	74	81.8	1.02
Kissimmee †	97	70	82.4	8.76
Lake City †	.....	.....	.....	5.66
Manatee †	93	65	78.9	8.49
Merritts Island †	94	70	82.3	5.79
Moseley Hall †	94	73	81.6	5.80
Mullet Key †	92	72	83.6	9.04
Myers †	91	70	80.6	8.70
Oak Hill *[1]	93	75	82.0	.....
Ocala *†[1]	93	73	79.8	7.04
Orange Park	95	68	81.0	11.20
Orlando †	97	68	82.7	7.61
Plant City †	97	68	81.6	9.51
Port Tampa †	98	76	87.1	.....
St. Francis B'ks	94	66	79.2	3.18
Tallahassee †	90	70	79.0	8.29
Tarpon Springs †	90	71	80.2	10.36
Georgia.				
Adairsville †	97	63	77.6	2.65
Alapaha †	98	68	81.4	11.08
Albany †	98	68	81.4	10.92
Americus †	98	66	81.7	6.61
Athens *a*	93	59	76.2	3.55
Athens *b* †	97	60	78.0	3.73
Bainbridge *a* †	96	70	82.0	6.29
Bainbridge *b* †	.....	.....	.....	6.87
Blakely *†[5]	96	70	81.2	7.69
Brag †	104	63	81.4	8.25
Camak	96	62	78.8	5.79
Camilla	94	69	80.0	6.05
Canton †	.....	.....	.....	8.65
Clayton †	90	56	72.2	2.99
Columbus †	95	64	80.3	4.88
Cordele †	96	66	80.4	8.66
Covington	96	60	77.6	5.46
Dahlonega †	93	60	73.4	8.74
Darien †	99	67	81.2	5.86
Diamond †	.....	.....	.....	4.40
Dublin *a* †	97[e]	52[d]	79.2[g]	7.04
Dublin *b* †	.....	.....	.....	7.74
Eastman †	98	64	81.2	11.17
Elberton †	95	61	77.4	2.28

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Georgia—Cont'd.	°	°	°	*Ins.*
Fleming †	101	67	82.0	11.45
Forsyth *[1]	98	66	79.4	9.54
Fort Gaines †	96	62	80.5	6.45
Gainesville †	90	59	74.2	4.40
Gillsville *†[1]	96	62	75.2	5.50
Griffin †	95	56	74.1	6.45
Hawkinsville †	93	57	76.8	10.31
Hephzibah *†[3]	92	64	77.3	8.36
Lafayette †	97	63	76.4	2.57
Lagrange †	95	61	77.0	5.44
Leverett	95	60	77.2	6.01
Louisville †	98	61	79.1	4.67
Lumpkin †	92	64	78.8	4.55
Macon *a* †	97[e]	55[e]	79.6[e]	6.77
Macon *b* †	.....	.....	.....	6.49
Marietta †	91	61	75.4	4.64
Marshallville †	97	66	80.6	8.23
Millen †	100	63	80.7	10.48
Monticello *†[1]	90	62	77.8	10.30
Morgan †	96	68	80.6	5.34
Newnan †	94	61	77.8	4.40
Point Peter *[1]	94	62	77.8	3.90
Poulan †	95	65	80.4	10.55
Quitman †	98	68	80.0	7.71
Ramsey †	99	60	76.8	3.88
Resaca †	.....	.....	.....	3.03
Reynolds †	.....	.....	.....	8.55
Rome †	96	65	77.6	7.69
Talbotton †	93	61	77.1	6.23
Thomasville †	95	70	81.4	6.22
Toccoa †	93	61	75.8	5.71
Union Point †	93	60	76.8	8.60
Washington †	95	59	77.0	6.80
Way Cross †	94	68	80.4	11.54
Waynesboro †	96	61	78.8	13.70
West Point † *	95	63	75.5	5.10
Whitesburg †	.....	.....	.....	7.62
Idaho.				
American Falls †	98	46	71.2	1.25
Atlanta †	.....	.....	.....	0.51
Boise Barracks †	102	44	73.8	0.06
Fort Sherman †	99	42	69.6	0.02
Garden Valley †	98	40	71.4	0.91
Grangeville	95	44	69.4	0.38
Hailey †	104	30	70.2	0.08
Idaho City † [f]	104	42	70.9	0.99
Kootenai †	90	43	66.2	0.26
Lake † [j]	76	34	55.6	1.20
Lewiston †	106	47	74.7	0.04
Moscow †	96	34	68.0	0.25
Murray †	95	38	66.2	0.26
Nampa	102	41	74.8	0.02
Oakley †	100	40	71.9	1.72
Paris †	93	40	66.8	0.58
Parker †	92	43	67.4	1.56
Payette †	110	44	76.8	0.25
Salubria †	107[h]	44[h]	76.6[h]	0.21
Illinois.				
Albion †	102	53	77.2	3.75
Aurora †	98	46	72.4	1.79
Beardstown †	.....	.....	.....	1.45
Braidwood †	96	48	73.6	0.85
Bushnell †	102	48	75.8	0.92
Carlinville †	103	50	76.8	1.20
Carlyle	.....	.....	.....	0.84
Chemung †	94	41	68.4	1.28
Chester †	.....	.....	.....	1.62
Clear Creek †	102	41	73.4	1.82
Decatur †	96	50	74.6	1.64
East Peoria †	97	47	70.8	0.51
Effingham †	100	51	76.2	2.72
Evanston *[10]	97	56	71.7	.....
Fort Sheridan †	95	47	69.2	0.27
Galva †	99	41	72.1	1.78
Golconda †	100	56	79.1	2.98
Grafton †	.....	.....	.....	2.15[g]
Greenville †	106	52	78.4	2.31
Griggsville †	102	51	76.4	1.19
Halliday *[3]	99[d]	64[d]	75.0[d]	1.70
Havana †	98	53	75.4	1.84
Herrins Prairie *[1]	100	54	81.0	1.75
Jordans Grove †	101	49	76.2	1.32
Kankakee †	.....	48	.....	1.30
Louisville †	100	50	76.0	1.75
Martinsville †	100	46	74.6	3.45
Mascoutah *[5]	107	54	81.0	1.50
Mattoon *[1]	98	62	76.1	2.23
Monmouth †	103	44	73.6	2.00
Mount Carmel †	.....	.....	.....	2.61
Mount Pulaski	97	52	74.4	1.51
Olney *a* *[1]	103	50	78.5	2.63
Olney *b* *[1]	104	55	75.1	3.30
Oregon †	101	48	75.0	0.50
Oswego *[1]	96	40	70.4	1.49
Ottawa †	103	46	73.7	1.75
Palestine †	98	47	75.1	3.92
Paris †	102	43	75.0	2.00
Peoria *a* †	.....	.....	.....	2.65
Peoria *b*	100	53	75.4	2.50
Philo †	99	40	72.8	1.22
Rantoul *†[6]	98	53	75.0	2.45
Riley †	96	44	71.0	1.33
Rushville	101	50	76.7	2.06
St. John *[8]	104	64	77.4	1.69
South Chicago *[10]	96	53	72.2	.....

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Illinois—Cont'd.	°	°	°	*Ins.*
Sycamore *†[1]	95	47	70.3	0.95
Tuscola *†[1]	98	48	71.8	2.06
Walnut †	103	44	70.2	1.35
Warsaw †	.....	.....	.....	0.01
Winnebago †	96	44	71.2	1.27
Zion †	99	46	72.2	3.19
Indiana.				
Angola *[1]	98	47	73.3	0.89
Ashboro †	99	45	73.7	3.13
Bedford †	100	43	75.1	1.75
Butlerville †	103	43	74.6	2.58
Cambridge City †	96	43	71.0	0.54
Columbia City *[1]	94	48	70.4	0.87
Columbus	99	48	77.7	0.85
Connersville †	96	47	73.2	0.67
Crawfordsville †	95	48	73.2	0.85
Degonia Springs *[6]	96	54	77.2	1.70
Delphi	99	45	73.6	1.46
Evansville †	102	50	77.8	2.73
Farmland †	95	43	71.2	2.25
Hammond †	100	48	68.6	0.44
Hawpatch †	94	43	67.8	0.41
Huntingburg † [1]	100	47	78.1	3.20
Huntington	98	46	71.0	3.99
Jeffersonville	96	50	76.9	4.02
Kokomo †	98	46	72.9	1.43
Lafayette †	100	42	73.1	2.51
Logansport *a* †	.....	.....	.....	0.72
Logansport *b*	97	45	71.2	0.79
Madison †	99	49	75.4	3.84
Marengo *[1]	98	52	76.3	3.60
Marion †	98	42	72.1	1.42
Markle †	98[e]	40[e]	70.9[e]	1.41
Mauzy †	98	41	73.1	0.56
Mount Vernon *b* †	.....	.....	.....	2.67
Muncie †	100[e]	57[e]	77.2[e]	.....
New Albany *†[1]	96	57	77.8	3.43
Plymouth †	95	45	72.3	1.25
Princeton *†[1]	102	55	76.7	2.75
Rockville †	100	44	74.5	2.23
Rushville †	.....	.....	.....	0.47
Scottsburg † *	95[e]	45	73.5	2.14
Seymour †	100	52	75.7	1.13
Shelbyville †	98[f]	50[f]	75.3[f]	1.37
South Bend †	94	47	71.7	0.51
Terre Haute †	96	52	76.2	3.63
Valparaiso †	96	38	66.6	1.30
Vevay	100	50	78.3	2.05
Vincennes †	101	47	76.2	3.76
Worthington †	97	47	73.7	2.45
Indian Territory.				
Eufaula †	.....	.....	.....	2.15
Healdton †	103[k]	55[k]	80.3[k]	3.42
Lehigh †	103	51	79.8	1.63
Purcell †	105	46	78.2	1.45
Tahlequah †	106	51	80.8	3.23
Tulsa †	.....	.....	.....	1.20
Iowa.				
Afton	104	49	77.3	0.12
Albia	104	48	75.7	0.50
Algona *[1]	96	51	72.9	1.77
Alta †	102	48	74.1	2.87
Amana †	103	45	73.5	1.98
Ames *c*	.....	.....	.....	2.10
Atlantic †	105	39	74.5	0.56
Audubon	102	42	74.4	1.31
Belle Plaine	103	43	74.4	1.34
Bonaparte †	106	46	77.1	1.60
Carroll †	100	41	72.3	1.61
Cedar Falls †	102	40	75.0	1.95
Cedar Rapids †	100	47	74.7	2.51
Centerville †	106	50	79.0	0.65
Charles City †	102	50	75.2	1.10
Clarinda †	101	50	77.6	0.23
Clinton	100	46	73.6	1.74
College Springs	106	49	77.8	T.
Corning †	98	49	74.9	0.37
Cresco †	101	42	72.0	1.03
Decorah †	102	40	72.8	0.53
Delaware *[8]	103	42	70.7	1.77
Elkader †	103	38	73.0	1.84
Emmetsburg	102	49	72.6	2.09
Fairfield †	102	45	73.5	2.21
Fayette †	103	39	73.5	1.44
Forest City	101	44	72.6	0.87
Fort Madison *†[1]	101	59	78.4	0.55
Galva †	101	40	70.6	2.48
Glenwood † [1]	108	48	80.8	0.02
Grand Meadow *[1]	97	50	72.1	1.03
Greenfield †	102	49	77.6	0.53
Grundy Center	98	42	73.0	1.71
Hampton	101	44	72.8	2.68
Hawkeye	.....	.....	.....	0.83
Hopeville †	101	50	77.0	0.75
Hopkinton *[6]	97	45	73.0	4.24
Humboldt †	.....	.....	.....	1.57
Independence †	100	42	72.2	2.10
Indianola †	103	43	76.5	0.95
Iowa City †	99	44	71.9	2.40
Iowa Falls †	98	38	72.0	1.56
Jefferson †	105	44	76.6	2.38
Keosauqua †	104	50	76.4	0.99
Knoxville	100	49	75.8	2.62
Larrabee †	103	40	74.1	2.50
Le Claire †	.....	.....	.....	1.53

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Iowa—Cont'd.	°	°	°	*Ins.*
Logan †	108	43	75·3	1·93
Marshall †	102	42	73·9	1·20
Mason City †	102[d]	38[d]	72·2[d]	0·98
Maxon *[1]	106	60	75·5	0·60
Mechanicsville	101	45	72·6	2·41
Monticello †	99	44	73·0	3·42
Mount Pleasant [2]			72·4	0·66
Newton	104	49	75·2	4·53
North McGregor †				1·32
Ogden	105	45	77·1	2·28
Osage *†[2]	99	52	68·9	2·18
Oskaloosa †	103	44	74·5	2·30
Ottumwa	102	50	76·3	1·32
Ovid †	105	46	78·8	0·35
Panama *†	100	47	74·8	1·63
Richland *[1]	107	53	74·3	2·22
Rockwell City				1·75
Sac City †	103	57	75·9	3·60
Seymour †	101	47	77·5	1·59
Sibley	97	43	71·4	0·97
Spirit Lake †	104	44	75·0	1·11
Sutherland	102	44	72·9	2·90
Toledo *[1]	104	42	76·7	0·96
Villisca †				0·39
Vinton *[1]	103	50	73·4	2·28
Washington †	102	46	74·2	1·89
Webster City *[1]	104	46	74·7	1·95
Williams *[1]	103	50	72·3	1·69
Winterset †	103	47	76·3	0·53
Kansas.				
Abilene †	103	49	78·8	0·82
Achilles *[2]	104	53	72·8	0·87
Allison *†[2]	101	53	75·4	0·83
Altoona *†	104	57	77·4	0·79
Atchison †	103	50	78·6	0·07
Beloit †	105	51	80·3	0·10
Burlington †	104	46	78·7	0·73
Coffeyville *[6]	106	50	79·0	0·25
Colby †	101	46	75·2	0·07
Coldwater †	101	53	79·6	1·55
Collyer *[2]	102	60	72·6	1·00
Columbus †	101	49	76·4	2·45
Coolidge †	104	47	75·4	0·50
Cunningham †	104	46	78·5	0·12
Downs				0·27
Eldorado †	104	58[j]	80·0[j]	1·28
Elk City *[1]	105	53	80·9	0·50
Ellis *[1]	104	56	76·2	0·20
Emporia †	101	57	79·0	0·20
Englewood †	103	48	77·0	0·83
Eureka Ranch †	106	50	78·6	0·12
Fort Riley †	101	40[h]	75·4[h]	2·00
Garden City †	98	49	73·4	1·83
Garfield				0·14
Gibson *[1]	104	49	75·3	0·25
Gove *†[1]	107	58	77·6	0·10
Grainfield *[6]	104	60	76·7	0·50
Grenola *[1]	107	48	80·4	0·25
Halstead *	100	45	75·6	1·61
Hays City †	103	45	75·2	T.
Horton †	105	51	79·1	0·05
Hutchinson †	103	48	78·6	0·50
Independence †	110	51	81·8	0·66
Ionia †	102	52	78·6	T.
Jaqua †	103	45	75·0	0·31
Johnson †	102	50	75·5	1·06
Kiowa †	109	51	79·6	0·16
Lakin †	99	41	73·7	1·15
Lawrence [1]	102	52	75·1	0·49
Lebo †	106	43	79·1	0·83
Leoti †	103	50	73·8	1·65
Liberal †	106	49	77·4	1·35
Macksville †	105	49	78·2	0·51
McPherson †	101	47	79·8	0·14
Manhattan b	107	45	80·4	0·48
Manhattan c *[1]	111	48	76·7	0·68
Marion †	101	44	76·7	0·49
Marmaton				2·51
Medicine Lodge				0·27
Minneapolis †	104	49	79·1	0·24
Monument *[1]	103	60	77·6	1·25
Morland †	102	48	76·0	0·54
Morton †	102	48	74·4	1·05
Mount Hope *[1]	101	62	79·5	1·46
Ness City †	101	59	80·8	0·05
New Eng. Ranch †	100	53	77·5	0·45
Oberlin †				0·71
Olathe †	105	48	77·4	2·50
Oswego †	109	43	78·4	1·11
Phillipsburg †	110	50	79·2	0·54
Pleasant Dale †	103	47	77·0	0·40
Quinter *[1]	105	60	85·0	.....
Rome *†[1]	101	52	79·5	0·62
Salina †	104	52	80·5	0·50
Sedan †	106	55	82·4	0·16
Sharon Springs *[1]	104	60	78·5	0·45
Topeka	103	48	80·5	0·60
Tribune †	102[e]	49[e]	74·0[e]	1·55
Ulysses †	106	52[e]	77·8[e]	0·50
Wakefield *[1]	108	60	82·3	0·78
Wallace *a*				1·71
Wamego *[1]	104	47	79·7	0·43
Washington †	110	45	78·9	0·46
Wellington *[3]	102	61	82·8	0·67
Winfield *[6]	112	50	82·6	0·15

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Kansas—Cont'd.	°	°	°	*Ins.*
Winona *[1]	100	59	78·4	0·25
Yates Center †	103	47	78·0	0·60
Kentucky.				
Alpha *†[1]	100	56	81·9	0·83
Blandville	101	54	77·3	3·10
Bowling Green *a* *[1]	98	48	74·0	3·10
Bowling Green *b* †	100	56	79·2	2·98
Caddo †	90	53	76·2	2·10
Canton *†[1]	105	56	77·8	2·28
Carrollton †	104	46	77·0	1·57
Catlettsburg †				3·46
Cromwell †				3·36
Eddyville *†[1]	94	60	75·6	2·64
Edmonton †	98	53	75·3	4·62
Elizabethtown †[6]	97	63	79·3	3·14
Eubank †	102	48	76·8	4·47
Falmouth †				1·88
Fords Ferry †	105	52	78·8	2·13
Franklin *†[1]	103	64	79·5	2·20
Greendale *[1]	96	62	77·0	4·50
Greensburg *†[1]	98	57	74·7	4·75
Harrodsburg †	98	48	76·6	6·07
Henderson †	98	56	79·8	2·30
Hendricks †				7·55
Louisa †				4·16
Marrowbone †	99	49	76·0	2·06
Matlock *[1]	98	62	80·2	1·60
Middlesboro †	95[e]	54[e]	75·2[e]	2·29
Mount Sterling †	94	43	74·5	3·02
Munfordville *†[1]	97	55	78·9	3·28
Paducah *a* †				2·50
Paducah *b* †	105	57	80·8	2·32
Princeton †	104	50	75·8	4·54
Russellville †	103	50	79·0	1·91
Sandy Hook †	99	41	73·6	4·32
Shelby City *[1]	94	55	74·6	2·84
Shelbyville †	103	46	77·7	1·78
South Fork † [2]			71·9	2·65
Springfield †	100	51	76·2	4·03
Williamsburg †				2·10
Louisiana.				
Abbeville	94	66	79·8	5·25
Alexandria †	96	63	78·1	7·74
Amite †	96	65	79·8	6·90
Bastrop †	99	60	78·2	2·76
Baton Rouge †	94	65	80·2	5·56
Calhoun †	97	63	78·8	3·25
Cameron †	95	65*	78·0	11·90
Cheneyville †	96	65	79·8	4·62
Coushatta *a* †				6·48
Coushatta *b* †	95	62	78·8	7·76
Covington †	94	66	79·5	8·55
Davis	95	62	81·0	9·16
Delhi †				5·08
Donaldsonville †	95	67	81·2	4·94
Emilie †	93	66	83·2	10·52
Farmerville	97	63	78·4	3·15
Franklin †	94	68	80·5	11·11
Girard †				3·76
Grand Coteau	93	66	78·0	3·48
Houma †	93	72	82·8	0·45
Jeanerette †	96	64	79·2	6·66
Lafayette †	95	65	80·2	7·29
Lake Charles †	96	68	80·7	10·50
Lake Providence †	95	64	78·2	3·12
Lawrence †	98[d]	70[d]	82·4[d]	9·12
Liberty Hill	100	62	80·0	6·10
Many †	95	60	78·6	12.46
Maurepas	98	64	81·2	6·15
Melville †	97	65	80·5	3·88
Minden †	98	60	81·6	4·91
Monroe †	98	65	79·6	3·15
Natchitoches †	95	59	77·4	6.19
New Iberia	92	65	79·8	5.16
Oberlin †	96	62	81·9	6.04
Opelousas †	98	65	80.2	2.60
Oxford †	92	59	79·0	4·85
Paincourtville †	94	65	80·9	6.44
Plain Dealing †	95	61	77·4	3·59
Rayne †	98	65	80·5	7·69
Schriever †	96	67	81·0	5·31
Shell Beach	90	66	79·2	10.33
Sugar Ex. Station †	93	69	80·6	7·52
Sugartown †	93	55	74·1	7·62
Thibodeaux				6.02
Wallace	93	68	79·9	8.71
West End				10.03
Winnsboro	96	66	79·4	2.20
Maine.				
Bar Harbor	86	46	63·0	1.65
Belfast *[6]	81	53	62·8	4·72
Calais † [1]	82	44	62·4	2.88
Cornish *[1]	86	47	63·8	4·79
Easton	83	38	59·8	3·45
Fairfield	86	38	62·7	3·50
Farmington †	89	33	62·4	2·61
Gardiner	88	43	65·5	3.06
Houlton †	86	35	61·3	2.22
Lewiston	90	45	65·4	2.55
Madison *[1]	92	48	65·4	3.28
Mayfield	86	39	61·2	2.05
North Bridgeton	85	44	63·3	3·59
Petit Menan *[1]	71	48	58·8	.....
West Jonesport *[1]	74	46	58.6	.....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Maryland.	°	°	°	*Ins.*
Annapolis	90	56	73.6	0.93
Bachmans Val. *[1]	94	56	69.7	4.29
Bel Alton [f]	95	55	74.4	1.30
Benedict †	96	55	74.8	1.15
Boettcherville *[1]	92	52	69.8	2.00
Charlotte Hall †	95	52	74.2	2.79
Cherryfield-† [2]			72.0	3.20
Chestertown †	91	51	71.8	3.54
College Park	96	50	72.2	3.56
Cumberland *a* †	90	52	70.8	1.15
Cumberland *b*	92	54	73.6	1.57
Darlington †	97	51	70.6	2.76
Denton †	90	51	73.0	2.63
Easton †	89	51	72.6	4.91
Fallston *[1]	88	57	70.3	2.83
Fenby *[1]	90	59	71.2	2.70
Frederick	94	52	72.8	1.54
Grantsville	85	42	66.4	1.62
Great Falls *[5]	90	58	73.4	2.10
La Plata †	96	55	74.9	1.41
McDonogh [f]	88	57	72.4	.....
Mardela Springs †	89	50	71.4	3.54
Mt. St. Marys Col †	95	52	74.4	2.50
New Market *[1]	90	58	70.7	1.59
Oakland †	84	41	63.8	1.86
Pocomoke City	93	55	73.2	4.57
Popes Creek	96	51	74.5	1.80
Princess Anne	90	56	72.1	2.79
Solomons †	96	60	75.8	1.86
Sunnyside	87	39	64.8	1.01
Taneytown †				1.72
Upper Marlboro †	93	51	73.0	2.17
Woodstock †	95[e]	50	69.4	2.80
Massachusetts.				
Adams	87	42	65.2	.....
Amherst	88	39	66.6	0.38
Amherst Ex. St'n *a*	91	36	66.9	0.32
Amherst Ex. St'n *b*	91	37	68.0	0.31
Ashland				2.12
Bedford	86	40	66.3	1.62
Beverly Farms	80	43	63.8	1.63
Blue Hill (sum't)	87	42	65.9	2.39
Blue Hill (valley)	89	35	65.6	1.34
Boston				2.95
Brockton *a*	89	44	67.0	1.26
Brockton *b*				0.98
Brockton *c*				1.12
Cambridge *a*	91	43	68.0	1.83
Cambridge *b*	89	46	67.8	1.63
Chestnut Hill	92	42	69.1	2.27
Clinton				0.68
Concord †	89	38	66.8	1.81
Dudley	91	49	68.9	2.02
East Templeton *[1]	89	50	66.2	0.54
Egg Rock, Nahant	82	48	65.2	.....
Fall River *[1]	83	49	66.7	1.89
Fiskdale				1.92
Fitchburg *a* *[1]	90	50	66.9	0.58
Fitchburg *b*	92	41	67.6	0.66
Framingham	90	40	67.2	1.94
Groton	92	36	65.9	0.74
Hadley	90	36	68.0	0.50
Hingham				1.43
Hyannis	85	51	70.2	1.48
Kendall Green	87	.....	67.6	1.73
Lake Cochituate	90	34	65.7	2.57
Lawrence	89	47	69.0	0.83
Leeds	92	37	65.4	0.26
Leominster *[6]	90	47	68.5	0.79
Long Plain *[4]	83	44	65.6	1.50
Lowell *a*	89	45	68.7	0.93
Lowell *b*	92	42	66.9	.....
Lowell *c*	94	45	69.1	.....
Ludlow Center	88	35	65.1	0.84
Lynn *b*	89	47	67.4	.....
Mansfield *[1]	88	44	64.3	2.02
Middleboro	85	37	65.4	1.84
Milton	86	40	65.3	1.21
Monroe	85	38	61.4	1.32
Monson	87	41	67.4	1.57
Mount Nonotuck				0.63
Mystic Lake				2.52
Mystic Station				1.70
Natick *[1]	86	50	67.2	1.60
New Bedford *a*	78	47	66.5	2.18
New Bedford *b*	83	44	66.0	1.98
Newburyport				0.48
North Billerica	90	43	67.6	1.45
Pittsfield	84	40	64.3	1.28
Plymouth *[1]	86	53	67.8	1.47
Provincetown	83	50	67.8	1.44
Randolph				1.45
Roberts Dam				1.33
Roxbury	87	45	67.2	2.27
Salem				1.26
Salisbury				0.57
Somerset	90	46	72.4	1.81
South Dennis	87	48	67.5	1.76
Springfield Arm'ry	88	48	70.0	0.93
Taunton *b*	87	44	67.4	1.54
Taunton *c*	87	37	66.4	1.55
Taunton *d*	90	42	67.6	1.50
Wakefield †	89	42	66.9	1.07
Webster				2.49
Wellesley	90	38	66.6	.....

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Massachusetts—Con.	°	°	°	*Ins.*
Westboro †	88	43	67.3	0.09
Williamstown	85	41	62.2	1.46
Winchendon				1.06
Winchester				1.24
Winthrop	89	47	67.3	2.39
Worcester *a*	86		66.6	1.50
Worcester *b*	86	42	67.0	1.47
Worcester *c* *[1]	87	48	65.4	.....
Michigan.				
Adrian	96	39	68.0	0.48
Allegan	95	41	69.5	0.61
Alma	92[d]	36[d]	65.5[d]	0.17
Ann Arbor	92	46	68.5	T.
Arbela [2]			63.2	0.05
Ball Mountain	90	44	67.5	0.06
Benton Harbor	93	41	68.0	0.14
Berlin *[1]	96	41	68.2	0.06
Berrien Springs *a* *[1]	98	57	70.9	0.18
Berrien Springs *b*				0.00
Birmingham	94	45	68.4	0.00
Bois Blanc *[10]	92	51	66.4	.....
Boon [1]	93	33	63.8	0.52
Bronson	95	37	68.5	0.28
Calumet	82	43	60.8	1.48
Charlevoix	89	39	64.8	0.45
Cheboygan	87	36	61.6	2.52
Clinton	98	41	69.2	0.05
Crisps *[10]	80	42	59.2	.....
Fairview	92	41	67.0	0.28
Fitchburg	91	37	66.6	0.00
Flint	95	36	65.4	0.12
Frankfort *[10]	80	50	66.9	.....
Gladwin	93	40	64.4	T.
Grand Rapids	96	42	69.2	0.38
Grape	95	43	69.0	0.14
Grayling	92	34	62.0	0.53
Grindstone City *[10]	88	46	61.9	.....
Hanover	91	43	68.2	0.16
Harbor Springs	91	37	63.3	0.86
Harrison	91	27	58.3	0.05
Harrisville	94	43	64.2	0.29
Hart	78	40	62.3	1.25
Hastings	92	42	67.2	0.82
Hayes	90	41	63.4	0.14
Hesperia	94	30	64.8	0.33
Holland *[10]	84	54	68.3	.....
Howell	96	35	66.8	0.04
Jeddo	94	43	67.0	0.09
Kalamazoo	94	49	70.0	0.91
Lake City *[6]	.....	47[h]	66.2[g]	0.52
Lansing	93	43	67.2	T.
Lathrop *[1]	93	41	60.8	0.38
Lewiston	92	40	66.0	1.09
Lodi	94	38	65.8	0.45
Ludington *[10]	85	50	65.2	.....
Madison	90	43	69.2	0.35
Manistee *[10]	80	50	64.4	.....
Mayville	94	43	68.6	0.07
Middle Island *[10]	81	50	62.6	.....
Montague	88	48	66.7	.....
Mottville	97	39	69.9	0.06
Muskallonge L. *[10]	80	42	58.4	.....
N. Manitou Isl'd *[10]	84	56	65.6	.....
North Marshall	92	38	66.0	T.
Northport	87[d]	48[d]	68.1[d]	T.
Old Mission	90	43	68.2	0.42
Ottawa Point *[10]	82	52	64.5	.....
Ovid	93	40	67.3	0.02
Parkville				0.29
Pentwater *[10]	82	54	68.3	.....
Pte aux Barques *[10]	92	53	69.0	.....
Point Betsey *[10]	78	52	66.8	.....
Pontiac	99	40	67.6	0.00
Rawsonville	94	46	70.0	T.
Rockland	89[g]	38[h]	63.8[h]	0.60
St. Ignace	80	40	62.0	1.63
St. Johns	94	43	68.2	T.
Sand Beach *a*	93	45	67.4	0.77
Sand Beach *b* *[10]	86	50	66.6	.....
Ship Canal *[10]	90	41	62.9	.....
Stanton	93	38	67.2	0.26
Thornville	92	46	69.9	0.18
Two Heart River *[10]	84	42	57.9	.....
Vandalia	94	46	70.2	0.10
Vermillion Pt. *[10]	74	36	53.3	.....
Ypsilanti	94	39	67.2	0.11
Minnesota.				
Ada †	95	40[j]	68.2[j]	0.92
Airlie †	96	42	70.8	3.22
Alexandria *a* †				1.59
Alexandria *b*	94	44	68.8	1.35
Beardsley †	96	39	71.6	2.03
Belle Plaine *[1]	93	.....	74.9	.....
Bird Island	96	44	69.9	2.83
Blooming Prairie *[1]	100	44	71.7	0.70
Bonniwells Mills †	103	42	72.2	0.56
Caledonia †	97	42	70.4	0.82
Cambridge †	95	37	68.8	1.20
Camden †	98	44	70.2	1.40
Campbell	95	35	68.4	3.30
Carver † [2]			69.0	1.04
Clear Lake †	96	42	69.4	0.95
Clearwater *[1]	98	48	69.0	0.80
Collegeville	99	44	71.2	0.35
Cromwell				2.15

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Minnesota—Cont'd.	°	°	°	*Ins.*
Crookston †	91	40	67.2	2.28
Dassel *1	96	48	72.8	T.
Farmington †	98	42	71.5	0.52
Fergus Falls †	93	46	69.8	1.09
Fort Ripley †	.....	.....	.....	0.93
Grand Meadow †	99	42	71.0	1.99
Granite Falls	99	40	72.2	0.96
Hutchinson *1	98	54	71.4	0.60
L. Winnibigoshish *1	86	47	65.7	0.88
Leech Lake *1	90	49	64.3	1.10
Long Prairie †	97	37	69.0	0.72
Luverne †	95	44	71.0	1.32
Maple Plain	99	39	71.4	0.66
Marfield †	89	33	62.8	0.94
Mazeppa [1]	102[b]	42	70.2	0.70
Medford †	97	36	70.1	0.99
Milan † [1]	97[b]	41	72.2	3.44
Minneapolis *a †	97	45	72.3	0.55
Minneapolis *b [1]	97[b]	45	71.7	0.43
Minnesota City †	98	40	70.0	0.05
Montevideo †	97	41	69.9	1.83
Morris †	94	41	70.8	1.71
New Richland *1	102	52	71.2	.....
New Ulm	96	50	75.0	.....
Ortonville †	.....	.....	.....	2.19
Park Rapids †	91	38	67.0	0.96
Pine River *1	88	49	67.0	1.01
Pokegama Falls [1]	90[b]	34	72.6	1.89
Red Lake †	90	41	66.2	1.96
Red Wing †	.....	.....	.....	1.45
Redwood Falls †	.....	.....	.....	1.38
Reeds Landing †	.....	.....	.....	0.49
Rolling Green †	96	42	70.7	1.20
Rush City †	94	38	67.0	0.55
St. Charles †	99	35	70.8	0.31
St. Cloud	94	50	71.2	0.90
St. Olaf	93	49	70.0	1.50
St. Peter †	90	37	71.2	2.06
Sandy Lake Dam *1	87	49	64.8	0.06
Sauk Center	96	42	67.2	1.11
Sunrise City *6	98	32	68.5	0.75
Wabasha *1	97	48	72.2	0.18
Willmar †	94	42	69.8	3.46
Winona	99	49	74.6	0.02
Mississippi.				
Aberdeen †	103	58	79.4	7.18
Agricult'ral Col'ge	93	65	77.6	6.76
Batesville †	92	59	76.9	5.88
Bay St. Louis †	93	70	78.9	8.16
Biloxi †	94	70	80.9	9.17
Briers	89	66	78.0	2.51
Brookhaven †	98	64	80.7	5.15
Canton †	91	66	77.8	3.16
Clarksdale †	93	67	80.2	6.98
Columbus †	100	64	80.3	5.35
Corinth †	99	51	76.5	3.23
Crystal Springs †	94	63	78.1	6.31
Duck Hill †	92	64	79.8	3.35
Egypt *1	97	65	81.3	.....
Enterprise †	94	65	78.0	8.70
Fayette †	91	67	78.6	5.99
French Camps †	.....	.....	.....	6.77
Greenville *b †	99	63	79.6	5.96
Hattiesburg †	97	67	81.1	6.43
Hazlehurst †	95	64	79.2	5.52
Hernando †	96	59	78.6	5.33
Holly Springs †	94	59	77.1	7.09
Itta Bena *† [1]	98	66	80.4	2.77
Jackson †	98	62	79.3	7.77
Kosciusko †	94	61	76.6	3.12
Lake †	91	62	77.2	7.43
Leakesville †	96	68	79.8	7.32
Logtown †	91	67	79.6	6.30
Louisville †	98	62	76.6	7.17
Macon †	100	65	79.9	7.45
Mayersville	96	62	78.2	4.90
Moss Point †	94	69	81.0	8.65
Natchez †	94	65	79.6	6.36
Okolona †	101	62	79.8	7.37
Palo Alto †	94	64	78.0	6.51
Pontotoc †	98	60	78.4	4.54
Port Gibson †	95	66	79.1	4.41
Stonington *1	90	68	78.6	.....
Thornton *† [2]	94	62	79.0	2.50
Topton *2	92	70	76.6	4.40
University †	96	60	76.2	3.78
Water Valley *1	99	64	77.5	4.68
Waynesboro *a †	95	63	77.4	8.79
Waynesboro *b †	97	62	79.2	9.28
Woodville †	95	65	80.5	5.46
Yazoo City †	100	65	80.2	3.82
Missouri.				
Akron	.....	.....	.....	1.22
Appleton City †	98	50	77.1	1.83
Arthur	.....	.....	.....	1.61
Bagnell †	.....	.....	.....	2.52
Bethany	105	45	77.6	0.29
Big Piney	.....	.....	.....	0.65
Birch Tree	100	49	75.0	5.02
Bluffton *1	110	56	78.6	1.51
Boonville †	.....	.....	.....	1.40
Brunswick	99	52	77.3	0.40
Carrollton †	100	54	78.0	1.44
Carthage	.....	.....	.....	0.85
Conception	99[d]	50[d]	79.8[d]	0.65

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Missouri—Cont'd.	°	°	°	*Ins.*
Cowgill	102	52	80.2	0.88
Darksville †	107	50	80.4	0.90
Dixon	103	57	79.9	0.89
Downing	.....	.....	.....	0.92
Edge Hill *5	98	62	75.8	2.46
Eight Mile *1	98	52	74.1	1.97
Eldon *1	106	60	78.1	1.53
Elmira	110	42	78.0	0.81
Emma *3	.....	62	80.8	0.20
Fairport	.....	.....	.....	0.79
Farmersville	.....	.....	.....	0.67
Fayette	108	47	80.4	0.79
Fox Creek *1	94	62	75.1	3.27
Fulton	.....	.....	.....	1.78
Gallatin *1	102	55	78.0	0.29
Gayoso *2	.....	56	74.6	2.71
Glasgow	104	46	78.4	0.77
Glenstead	.....	.....	.....	1.37
Gordonville *† [3]	.....	50	72.2	1.44
Gorin *2	111	63	76.4	0.85
Greenville	106	44	78.0	1.98
Grove Dale	106	40	74.8	3.04
Half Way	102	44	70.7	2.89
Harrisonville †	108	51	79.8	0.35
Hastain	102	41	78.8	1.20
Hermann †	.....	.....	.....	1.51
Houston	103	39	73.5	2.46
Houstonia (near)	.....	.....	.....	0.42
Ironton *1	100	47	73.8	1.19
Kidder	105	50	78.8	0.11
Lamar †	96	52	75.9	2.39
Lamonte †	.....	.....	.....	0.26
Langdon †	103	41	76.4	0.55
La Plata *1	98	60	76.9	1.15
Lebanon	100	48	77.4	0.88
Lexington †	100	50	76.6	0.74
Liberty	103	50	79.1	0.29
Louisiana Bridge †	.....	.....	.....	3.28
McCune *1	103	45	75.3	3.08
Marceline	.....	.....	.....	0.64
Marshall †	106	44	77.9	0.93
Maryville *4	100	53	76.0	0.12
Mexico †	105	47	77.4	0.78
Mine La Motte †	97	47	74.6	0.92
Mount Vernon	102	46	75.4	2.14
Nevada	.....	.....	.....	4.13
New Hartford *1	105	62	75.8	2.58
New Haven *1	100	60	78.7	3.58
New Madrid	101	54	79.1	2.80
New Palestine	.....	.....	.....	1.01
Oakfield †	100	55	76.6	3.27
Oak Ridge *4	.....	53	76.5	0.90
Olden †	103	51	76.7	1.13
Oregon *a	102	52	78.9	0.04
Oregon *b †	105	51	77.8	0.05
Oto	.....	.....	.....	1.00
Palmyra	.....	.....	.....	1.10
Panacea	96	59	77.4	4.73
Phillipsburg *†	100	56	75.7	2.04
Pickering *5	.....	50	73.6	0.18
Platte River *3	100	50	74.2	0.28
Poplar Bluff	100	60	76.8	2.39
Potosi	95	43	71.9	4.52
Princeton *1	104	52	77.6	1.54
Rea *1	104	53	77.9	1.38
St. Charles	99	53	75.1	3.06
St. Joseph †	.....	.....	.....	0.80
St. Louis	101	49	75.6	1.53
Sarcoxie *3	106	54	76.4	1.25
Sedalia	101	52	79.1	0.68
Shelbina	.....	.....	.....	1.50
Steffenville	.....	.....	.....	1.49
Stellada †	103	46	76.8	0.20
Sublett	101	46	76.0	1.10
Tindall †	.....	.....	.....	0.42
Unionville	102	48	80.1	1.52
Vermont *† [1]	102	54	77.1	0.79
Vilas	.....	.....	.....	1.03
Virgil City	.....	.....	.....	2.44
Warrensburg *1	100	61	77.6	0.35
Warrenton	101	53	77.0	3.21
Wheatland	.....	.....	.....	1.82
Whiteside	103	55	76.6	5.64
Montana.				
Anaconda †	.....	.....	.....	0.74
Billings †	96	38	70.6	0.50
Boulder †	92	42	65.6	0.70
Bozeman †	86	48	65.7	0.53
Butte †	91	44	65.9	0.87
Cascade †	.....	.....	.....	0.65
Cokedale *4	106	50	66.4	1.25
Columbia Falls †	94	39	63.2	0.31
Fort Custer †	99	40	72.2	0.00
Fort Keogh	101	49	74.4	0.35
Fort Logan †	92	38	61.6	0.30
Fort Missoula	98	43	67.2	1.39
Glasgow †	102	43	73.2	0.37
Glendive †	105	50	75.0	0.80
Great Falls †	99	43	68.6	0.17
Hogan †	96	41	67.6	1.85
Kipp †	95	35	62.2	0.65
Martinsdale †	95	39	66.4	0.82
Marysville †	92	42	66.8	0.80
Mingusville † [4]	103	40	72.6	0.90
Musselshell †	106	37	72.7	.....

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Montana—Cont'd.	°	°	°	*Ins.*
Pony †	87	47	66.4	0.70
Red Lodge †	.....	.....	.....	0.12
Utica †	98	43	70.4	0.86
Virginia City †	90	45	66.2	1.31
White Sul. Sp'gs †	88	41	64.6	0.85
Nebraska.				
Agee *1	106	61	78.1	0.38
Ansley †	105	45	74.2	0.44
Arborville *1	108	54	81.5	0.05
Ashland †	105	45	77.0	0.12
Ashton *1	104	50	73.5	1.01
Bassett	102	43	73.4	0.95
Beatrice	103	46	77.9	0.00
Beaver City	102	39	73.8	0.42
Bratton *1	100	52	78.4	T.
Burwell *1	102	62	80.7	0.66
Callaway †	102	42	73.2	0.40
Columbus †	100	46	75.8	1.19
Cornlea	.....	.....	.....	0.95
Creighton *† [1]	104	45	73.6	0.53
Crete	101	51	77.4	T.
Culbertson	.....	.....	.....	0.70
David City *† [5]	101	59	73.9	0.15
Ericson *† [1]	108	62	79.4	0.26
Ewing †	.....	.....	.....	0.85
Fairbury *6	99	60	79.4	0.07
Fort Robinson	95	45	72.0	0.24
Franklin †	106	50	77.8	0.71
Geneva †	104	46	76.8	0.90
Genoa †	103	50	77.8	1.04
Gering †	95[d]	.....	.....	0.70
Glenwood	.....	.....	.....	0.80
Hartington †	104	36	74.0	1.48
Harvard *1	104	57	78.2	1.02
Hay Springs †	97	44	72.9	0.43
Hebron †	103	49	77.2	0.15
Imperial *1	103	52	75.7	1.84
Indianola *6	102	50	78.6	1.81
Kennedy *† [1]	98	44	77.2	2.04
Kimball †	97	42	72.4	0.57
Lexington †	102	42	72.6	0.76
Lincoln	100	52	77.9	0.45
Lynch *† [1]	104	48	77.2	1.40
Madrid *† [5]	101	41	75.0	0.30
Marquette *	104	55	.....	0.47
Minden †	101	54	76.2	0.42
Mullen *† [1]	98	56	78.4	0.90
Nebraska City *† [1]	97	44	77.9	T.
Norfolk †	97	45	75.0	1.68
North Loup † [1]	102[b]	45	77.2	0.42
Oakdale †	105	42	75.8	0.92
Ogallala †	102	48[m]	71.0[m]	0.94
O'Neill *1	100	53	76.7	0.70
Ough †	.....	.....	.....	1.18
Palmer *1	106	56	78.5	0.30
Plattsmouth †	.....	.....	.....	0.36
Ravenna	102	46	75.4	1.49
Red Cloud	.....	.....	.....	0.07
Santee Agency †	106	47	76.2	1.51
Seward *3	100	48	74.1	0.31
Springview	103[c]	48[c]	76.4[c]	0.25
Stanton *1	99	53	74.2	0.91
State Farm	102	45	77.2	0.23
Superior *5	106	62	82.6	1.03
Sutton	103	47	76.5	2.57
Table Rock *† [1]	110	48	79.9	0.03
Tekamah	104	45	75.4	1.38
Turlington †	105	47	79.4	0.44
Wallace *1	100	50	70.1	0.00
Weeping Water *1	103	43	73.0	0.53
Whitman *1	92	40	70.2	0.79
Wilcox	.....	.....	.....	0.54
York *1	102	56	77.5	0.33
Nevada.				
Arthur	.....	.....	.....	0.32
Austin	86	48	68.0	0.50
Battle Mountain *1	95	65	77.0	0.00
Belleville *3	100	54	72.9	0.24
Belmont	86	48	66.0	0.53
Beowawe *8	98	61	79.7	0.00
Carlin *8	94	46	70.1	0.00
Carson City	93	36	66.1	0.05
Clover Valley †	.....	.....	.....	0.20
Cranes Ranch	.....	.....	.....	0.99
Downeyville	105	50	79.4	0.66
Elko *8	102	45	72.8	0.25
Ely	87	41	66.2	1.15
Fenelon *8	100	50	68.2	0.00
Genoa	89	43	67.8	0.20
Golconda *1	104	56	76.9	0.25
Gold Hill	99	48	72.4	0.15
Halleck *1	102	45	67.6	0.61
Hawthorne *a [8]	89	62	75.7	0.33
Hawthorne *b	92	49	73.2	0.33
Hot Springs *1	100	65	79.7	0.00
Humboldt *8	96	52	74.4	0.00
Lewers Ranch	96	42	68.4	0.09
Lovelock *8	108	64	82.7	0.00
McGill	87	35	65.2	.....
Mill City *1	100	50	70.1	.....
Osceola	92	53	72.0	0.76
Palisade *1	104	50	75.1	0.36
Palmetto	90	36	66.3	2.36
Paradise	105	32	71.6	0.00
Reno *8	100	52	75.7	0.05

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Nevada—Cont'd.	°	°	°	*Ins.*
Reno State Univ'ty	.....	38	.....	0.11
Ruby Valley †	.....	.....	.....	0.45
St. Clair	98	49	75.6	0.00
Stofiel	98	30	61.6	0.56
Sunnyside	99	40	77.4	0.76
Tecoma *8	98	62	75.4	0.20
Toano *1	95	40	70.6	0.00
Tybo	95	46	69.9	0.78
Verdi *8	93	49	66.4	0.10
Virginia City	90	45	68.2	0.24
Wadsworth *8	103	50	77.4	.....
Wells *8	92	52	68.3	0.00
Winnemucca *8	102	50	75.7	0.00
Yerington	90	47	71.2	0.39
New Hampshire.				
Alstead *6	83	41	65.8	2.84
Antrim	.....	.....	.....	1.10
Belmont	.....	.....	.....	1.35
Berlin	85	32	59.4	.....
Berlin Mills	88	31	59.8	2.96
Bethlehem	84	36	61.0	2.12
Brookline *1	91	44	64.8	0.68
Concord	90	35	64.5	0.65
Dublin	85	41	63.4	2.01
East Canterbury	87	44	66.1	1.88
Grafton	91	33	63.4	1.12
Hanover	85	38	62.6	2.18
Keene	90	35	64.6	1.05
Lakeport	.....	.....	.....	2.58
Lancaster	86	40	64.2	2.76
Littleton	84	32	60.2	2.91
Mine Falls	.....	.....	.....	0.50
Nashua	92	43	67.7	0.49
Newton	92	42	65.8	0.02
North Conway	91	38	62.4	2.35
Pennichuck Station	.....	.....	.....	0.27
Peterboro	88	34	63.4	2.29
Plymouth	87	35	62.2	3.12
Sanbornton †	86	40	62.5	2.42
Stratford	88	33	63.2	2.15
Weirs Bridge	.....	.....	.....	3.03
West Milan	82	30	58.6	1.91
Wolfboro	.....	.....	.....	4.01
New Jersey.				
Allaire	91	45	69.5	.....
Asbury Park	88	48	70.8	1.09
Barnegat	91	53	69.6	3.77
Bayonne	92	53	72.8	2.41
Beach Haven	85	55	70.6	9.28
Belvidere	90	48	69.8	2.64
Beverly †	94	49	72.6	2.85
Billingsport *1	93	60	72.6	2.23
Blairstown	92	48	70.0	.....
Bridgeton	92	55	73.7	2.68
Camden	88	54	70.9	3.35
Cape May	86	54	70.8	2.14
Cape May C. H †	86	51	69.4	2.42
Charlotteburg	87	38	70.2	2.65
Chester	87	47	68.7	2.46
Deckertown	91[d]	45[d]	70.2[d]	1.00
Dover	89	47	68.0	2.83
Egg Harbor City	90	48	70.1	4.03
Elizabeth †	91	52	72.0	2.07
Franklin Furnace	90	45	68.3	1.48
Franklinville	92	46	69.7	3.53
Freehold	89	49	69.2	2.34
Friesburg	.....	.....	.....	3.50
Gillette	90	46	68.8	1.60
Hammonton	.....	.....	.....	4.49
Hanover	88	49	69.9	2.25
Hightstown	91	50	72.2	2.56
Imlaystown	93	43	72.8	2.23
Junction	.....	.....	.....	2.26
Lambertville	91	50	71.7	1.12
Millville	94	51	73.4	3.02
Moorestown	90	50	70.6	2.96
Newark *a	89	52	71.0	1.47
Newark *b †	91	53	71.8	2.05
New Brunswick *a	92	49	72.1	1.96
New Brunswick *b	88	51	69.2	1.89
Newton	92	48	69.1	1.04
Ocean City	86	51	69.5	3.27
Oceanic	90	58	74.0	2.02
Papakating	.....	.....	.....	0.15
Paterson	90	40	71.2	2.15
Pensauken	.....	.....	.....	3.92
Plainfield	90	51	72.6	1.93
Rancocas	85	54	.....	3.12
Readington *1	94	60	76.3	.....
Ringoes	.....	.....	.....	1.93
River Vale	89	44	68.8	3.93
Somerville	94	47	71.8	2.31
South Orange	88	54	70.4	1.48
Tenafly	88	45	69.2	3.17
Toms River	96	46	71.1	2.17
Trenton	90	55	73.6	2.76
Vineland	97	49	72.7	3.89
Whiting	94	48	71.8	2.16
Woodbine	89	48	69.4	2.20
New Mexico.				
Albert †	96	56	74.4	2.91
Albuquerque †	94	51	73.1	2.25
Alma †	96	50	72.5	2.71
Bloomfield †	103	45	73.2	1.78
Chama †	92	40	65.8	4.10

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
N. Mexico—Cont'd.	°	°	°	*Ins.*
Ciruella	.....	.....	.....	4.23
Deming **5	93	69	82.5	0.95
East Las Vegas †	84	46	65.5	4.05
Eddy †	96	59	77.1	0.57
Estalina Springs †	90	42	63.9[5]	4.62
Fort Bayard	91	50	70.6	3.29
Fort Stanton †	88	46	64.5	4.88
Fort Wingate	92	48	70.0	3.33
Galisteo †	88	49	67.9	5.57
Gallinas Spring †	94	52	73.5	2.84
Gila	.....	.....	.....	1.93
Halls Peak †	83	34	52.8	3.36
La Luz †	100[1]	46[1]	73.2[1]	2.45
Las Cruces †	99	52	75.4	4.15
Lordsburg **5	103	72	84.6	4.30
Los Lunas †	98	55	74.8	1.45
Monero †	88	36	62.9	2.87
Pecos	.....	.....	.....	3.10
Pojuaque	.....	.....	.....	0.93
Rincon †	.....	.....	.....	1.84
Roswell †	94	53	72.3	2.49
San Marcial †	92	51	72.8	1.38
Socorro †	95	54	74.4	2.58
Springer †	90	48	72.3	2.10
Sulphur Hot Sp'gs †	80	38	58.2	6.45
Taos †	95	40	68.2	2.11
New York.				
Adams Center	.....	.....	.....	0.51
Addison	88	40	65.7	1.44
Akron	.....	.....	.....	0.47
Alfred Center	86	40	64.9	0.56
Angelica †	86	37	62.2	2.26
Arcade	88	40	63.5	1.57
Arkwright	82	48	65.0	.....
Atlanta	.....	.....	.....	1.90
Baldwinsville	88	48	66.8	1.64
Bedford	87	44	68.4	1.53
Big Sandy *10	86	46	68.2	.....
Binghamton †	89	41	66.2	1.47
Bovina Center	.....	.....	.....	1.59
Boyds Corners	.....	.....	.....	1.45
Brentwood	86	48	68.2	2.00
Brookfield	84	40	63.7	1.02
Canton †	89	36	62.8	0.85
Carmel	.....	.....	.....	2.53
Charlotte *10	82	46	64.7	.....
Cherry Creek	.....	.....	.....	0.98
Cooperstown †	83	42	63.2	1.88
Cortland	84	47	64.1[8]	1.45
De Kalb Junction	.....	.....	.....	0.91
Demster	.....	.....	.....	0.94
Dunkirk	79	53	67.2[f]	1.00
Eden Center	91	39	62.7	1.45
Ellis	.....	.....	.....	1.44
Elmira †	89	45	67.7	1.23
Factoryville †	90	38	66.5	2.55
Fleming	90	47	67.1	2.06
Fort Niagara †	89	47	68.8	0.64
Friendship	87	35	63.2	2.41
Glens Falls	89	40	65.9	2.43
Gloversville	87	41	64.0	1.64
Hamilton	90	36	63.3	1.90
Hess Road St'n † 2	.....	44	63.8	0.68
Highmount *10	80	40	61.3	.....
Honeymead Brook	90	41	66.8	0.96
Hyndsville	90	37	66.0	0.89
Ithaca	89	42	66.1	0.59
Jamestown **5	87	50	66.5	.....
Kings Station	.....	.....	.....	3.14
Lebanon Springs	89	38	64.7	0.78
Le Roy	87	45	64.8	0.96
Lockport	90	45	66.3	0.66
Lowville	85	36	63.0	1.66
Madison Barracks †	84	42	66.6	0.53
Malone	83	38	61.7	1.05
Massena † 5	84*	38	64.8	0.65
Minnewaska	85	47	65.9	1.87
Mount Morris	90	37	64.8	2.27
Newark Valley	.....	.....	.....	2.21
New Lisbon	85	37	61.8	2.04
North Hammond †	86	44	65.4	1.08
Number Four †	80	36	60.0	1.09
Ogdensburg	81	43	64.9	0.30
Oxford	88	39	64.3	2.36
Palermo †	88	37	64.4	1.55
Perry City	90	37	64.1	1.38
Phœnix	.....	.....	.....	1.87
Pine City	.....	.....	.....	0.88
Plattsburg B'ks	82	40	64.2	0.89
Port Jervis	88	45	68.1	1.57
Poughkeepsie	92	40	67.9	1.04
Rome	84	42	64.3	2.40
Romulus	91	46	67.7	2.34
Rondout †	87	45	65.9	.....
Saranac Lake	88	34	60.7	1.58
Scottsville	.....	.....	.....	3.33
Setauket †	85	55	70.1	2.61
Sherwood	.....	.....	.....	2.95
South Canisteo	87	38	64.3	2.71
Southeast Res	.....	.....	.....	5.70
South Kortright †	89	36	63.2	0.84
Stillwater	89	42	67.6	1.73
Trumansburg	.....	.....	.....	1.40
Turin	82	41	61.2	1.54
Varysburg	92	40	65.3	0.85

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
New York—Cont'd.	°	°	°	*Ins.*
Wappingers Falls	91	42	69.5	1.17
Warwick	.....	.....	.....	0.83
Watertown	90	39	68.2	0.48
Wedgwood	93	42	67.3	1.41
West Point †	92	52	71.0	1.86
Willets Point	91	55	71.4	0.21
North Carolina.				
Asheville †	90	54	71.3	3.71
Auburn *1	99	60	76.3	7.72
Bailey *1	96	60	75.2	4.21
Bakersville †	90	48	70.0	7.38
Blowing Rock †	83	48	69.2	2.63
Bryson City †	.....	.....	.....	3.02
Chapel Hill †	96	56	75.5	0.21
Currituck Inlet †	.....	.....	.....	5.80[4]
Experiment'l Farm	95	58	75.6	5.79
Fair Bluff †	.....	.....	.....	7.82
Falkland *1	94	60	75.9	19.25
Fayetteville †	.....	.....	.....	13.45
Flat Rock	88	50	70.4	6.82
Goldsboro †	92	60	76.2	9.05
Greenville	.....	.....	.....	11.40
Greensboro †	96	60	76.8	2.48
Henderson †	97	58	75.6	4.78
Highlands	82	51	65.8	7.09
Horse Cove †	87	55	70.4	8.56
Lenoir *† 1	90	59	72.9	4.50
Lilesville	.....	.....	.....	7.96
Littleton †	96	58	75.2	4.00
Louisburg †	93	59	74.4	4.81
Lumberton †	96	61	78.6	9.39
Lynn *† 2	94	.....	72.0	3.73
Mocksville †	91	60	74.0	5.04
Moncure †	94	57	75.0	5.00
Mount Airy †	97	51	72.9	0.83
Mount Pleasant	95	58	75.8	2.95
Murphy †	.....	.....	.....	3.29
Newbern †	94	62	77.2	7.21
Oak Ridge †	95	59	75.6	1.45
Pantego	.....	.....	.....	14.99
Pittsboro	92	59	73.4	5.72
Rockingham †	99	59	77.4	8.88
Roxboro †	95	55	74.3	4.74
Salisbury a	91	63	76.5	3.75
Saxon †	99	55	75.8	2.98
Selma	93	58	76.2	13.71
Shelby †	96	59	74.5	4.62
Skyuka	86	50	67.1	3.91
Sloan	95	66	77.5	11.54
Soapstone M't †	96	55	75.0	2.59
Southern Pines †	99	58	77.2	7.13
Tarboro	97	58	77.1	13.32
Waynesville †	90	49	68.8	4.37
Weldon †	95	58	75.6	5.70
Willeyton	91	58	73.8	7.84
North Dakota.				
Ashley	100	35[d]	69.8[d]	0.97
Berlin †	98	34	68.8	0.60
Bottineau	96	40	60.0	0.60
Churchs Ferry	100	38	67.9	0.21
Dickinson †	99	38	68.4	0.95
Ellendale †	98	42	70.6	1.42
Fargo †	94	38	67.1	1.17
Forman †	97	34	70.0	2.29
Fort Stevenson †	98	43	71.4	2.27
Fort Yates †	102	41	72.4	1.20
Gallatin †	100	34	68.1	1.33
Grafton †	96	34	66.7	0.20
Jamestown †	96	46	71.4	1.76
Kelso †	97	35	69.0	2.71
Lakota †	94	39	67.5	1.49
McKinney	98	33	73.6	0.29
Milton †	92[e]	37[e]	66.4[f]	0.70
Minto †	98	38	68.4	0.62
Napoleon †	100	39	70.2	1.44
New Salem	101	38	69.2	0.30
Oakdale †	94	40	69.0	1.39
Portal †	101	43	70.3	1.40
Power † [j]	98	38	71.3	0.45
St. John †	93	42	67.9	0.59
Steele †	99	39	70.2	0.60
University †	93	36	66.6	1.74
Wahpeton †	93	39	69.5	1.97
White Earth *† 2	96	50	68.3	1.50
Wild Rice † 2	.....	.....	68.8	1.59
Willow City †	101	38	67.6	0.17
Woodbridge †	96	30	64.6	0.34
Ohio.				
Akron	95	47	70.5	0.28
Annapolis	98	40	70.6	0.33
Arcanum	.....	.....	.....	2.00
Ashland	92	43	68.5	0.29
Athens [c]	96	46	72.3	1.78
Atwater	.....	.....	.....	0.15
Auburn	91	39	66.2	0.12
Bangorville	95	46	70.3	1.59
Batavia	.....	.....	.....	1.47
Bellefontaine	96	43	70.6	3.18
Bement	95	42	67.2	0.91
Benton Ridge	100	.....	.....	0.91
Bethany	100	43	74.0	1.66
Binola	97	50	72.5	0.75
Bissells	94	45	69.5	0.42
Bladensburg	98	40	69.7	0.48
Bloomingburg	95	49	72.6	2.43

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Ohio—Cont'd.	°	°	°	*Ins.*
Bloomington	.....	.....	.....	2.84
Bowling Green	98	36	70.6	0.11
Bucyrus	95	42	71.1	0.65
Caledonia †	.....	.....	.....	1.00
Cambridge	97	44	69.9	1.86
Camp Dennison	102	45	76.0	2.61
Canal Dover	99	50	72.8	0.50
Canton †	93	45	70.3	0.33
Cardington	96	40	66.9	0.63
Carrollton	98	40	71.3	0.90
Cedarville *1	94	56	75.1	1.80
Celina	98	45	72.7	2.61
Cherry Fork	102	43	73.8	3.65
Circleville †	.....	.....	.....	2.57
Clarksville	98	48	73.5	2.58
Cleveland	92	48	68.8	1.37
Clifton	99	.....	.....	2.39
Coalton	96	42	71.0	4.50
Colebrook	.....	41	.....	0.33
Cynthiana	98	45	73.4	5.16
Dayton a	99	40	74.3	1.85
Dayton b †	.....	.....	.....	2.63
Defiance	95	41	69.4	2.50
Demos	95	50	72.4	1.59
Dupont	97	40	68.9	1.73
Ellsworth	91	44	69.3	0.16
Elyria	96	47	70.3	1.60
Fairport Harbor *10	86	50	69.0	.....
Fayetteville	96	45	73.5	2.39
Findlay	94	40	69.6	0.17
Fostoria	92	36	70.8	0.30
Frankfort	91	53	74.2	5.16
Garrettsville	94	41	67.5	0.23
Georgetown	101	55	76.7	1.63
Granville	96	42	70.3	1.66
Gratiot	95	45	70.5	0.86
Greenfield	96	50	72.4	2.45
Green Hill	97	38	70.1	0.53
Greenville	91	46	70.1	2.34
Guysville	97	45	71.9	1.56
Hackney	97	45	72.9	1.48
Hanging Rock	98	49	73.9	7.25
Harbor	87	48	68.3	0.18
Hedges	97	39	71.0	0.92
Hillhouse	94	43	68.0	0.62
Hillsboro	103	40	74.4	1.26
Hiram	93	48	70.2	0.22
Jacksonboro	102	50	76.3	0.75
Kenton †	100	44	71.9	1.66
Kilbourne	95	39	69.3	1.64
Killbuck	99	44	74.1	0.70
Leipsic	93	44	71.7	1.49
Levering	95	36	67.0	0.72
Logan	100	46	72.7	1.82
Lordstown	92	40	67.2	0.24
Lowell	104	42	74.8	2.66
McArthur	98	46	72.1	2.06
McConnelsville	100	45	72.3	3.14
Mansfield †	.....	.....	.....	0.50
Marietta a †	.....	.....	.....	2.47
Marietta b	98	50	73.2	2.19
Marion	97	42	70.8	1.28
Milfordton	96	42	69.7	0.96
Milligan	99	42	71.3	1.85
Millport	94	.....	.....	0.30
Montpelier	96	38	69.7	1.19
Napoleon	95	44	72.8	1.20
Nelsonville	98	47	72.9	2.37
New Alexandria	95	49	72.8	1.02
New Berlin	97	43	71.5	0.13
New Bremen	100	42	72.0	2.25
New Comerstown	98	43	70.3	1.31
New Holland	98	44	71.9	3.75
New Paris	98	42	74.6	0.95
New Waterford	92	39	67.6	0.58
North Fairfield *1	96	55	69.2	1.14
North Lewisburg	96	46	71.2	4.65
North Royalton	97	45	71.2	0.71
Northwood	100	43	72.3	2.10
Norwalk	96	42	69.2	0.80
Oberlin	96	44	71.1	0.34
O. S. University	98	45	70.6	2.52
Orangeville	94	41	69.0	0.77
Pataskala	98	43	70.5	3.35
Peoli j	92	46	73.0	0.50
Plattsburg	94	46	71.4	3.11
Pt. Marblehead *10	86	63	72.2	.....
Pomeroy	96	47	73.0	1.42
Portsmouth a †	.....	.....	.....	5.94
Portsmouth b	96	55	74.4	6.00
Ridge *b	94	48	73.1	2.69
Ridg'v'le Corners	95	43	70.3	3.35
Ripley	99	44	74.5	2.57
Rittman	93	39	67.2	0.41
Rocky Ridge	.....	.....	.....	0.59
Rosewood	96	43	70.1	3.21
Sharon Center	.....	.....	.....	0.68
Shenandoah	96	43	70.2	1.41
Sidney a †	.....	.....	.....	2.13
Sidney b	101	42	70.8	2.25
Springboro	.....	.....	.....	1.58
Stoutsville	.....	.....	.....	2.48
Sylvania	99	40	68.2	0.51
Thurman	97	49	73.3	2.13
Tiffin †	92	46	70.0	0.75

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Ohio—Cont'd.	°	°	°	*Ins.*
Upper Sandusky	98	47	71.5	0.66
Vanceburg	95	51	74.0	3.27
Van Wert	100	42	71.7	1.60
Vermillion	94	47	69.5	0.17
Vickery	94	48	69.3	1.41
Walnut	.....	.....	.....	2.41
Warren	98	40	69.0	0.03
Warsaw	102	37	70.1	0.24
Wauseon	98	40	70.7	0.87
Waverly	100	47	73.7	3.66
Waynesville	.....	.....	.....	1.84
Wellington	96	41	71.5	0.00
Westerville	93	46	68.9	0.90
Weymouth	96	40	68.8	0.60
Wheeler † 2	.....	.....	69.2	0.55
Wilioughby	.....	.....	.....	0.90
Wooster a	96	41	69.2	0.76
Youngstown	94	44	68.6	0.72
Zanesville †	.....	.....	.....	0.90
Oklahoma.				
Alva †	109	50	81.6	1.80
Anadarko †	107	50	78.4	2.78
Arapaho †	103	55	77.6	0.90
Britton †	.....	.....	.....	0.02
Burnett †	103	51	79.0	0.81
Clifton †	108	47	80.2	0.35
Fort Reno †	101	56	78.6	1.01
Fort Sill	99	57	78.1	2.47
Fort Supply †	102	55	77.1	0.26
Guthrie †	104	58	81.4	0.15
Keokuk Falls †	104	48	78.6	1.14
Mangum †	103	62	80.2	3.05
Ponca †	102	56	79.2	0.33
Pond Creek †	105	52	79.2	2.16
Stillwater †	104	50	78.8	0.79
Winnview †	104	62	81.6	0.85
Oregon.				
Albany a †	98	46	69.1	0.10
Albany b **	98	52	69.2	0.10
Arlington †	101	52	75.5	T.
Ashland a **	98	57	75.2	0.00
Ashland b	100	41	70.0	T.
Aurora **	95	55	72.1	0.00
Bandon	78	41	59.0	0.00
Bay City	83	46	61.4	0.27
Beulah †	100	46	74.2	0.30
Brownsville **	98	56	70.0	0.01
Burns †	96	23	62.8	0.00
Canyon City †	108	45	75.9	0.09
Cascade Locks	96	50	69.9	0.00
Comstock **	104	48	68.3	0.35
Condon	96	39	68.6	0.15
Cornelius	98	44	68.4	0.28
Corvallis a	96	42	67.3	0.05
Corvallis b **	94	52	66.6	0.00
Corvallis (near)	96	46	69.7	0.14
Crook	95	34	60.6	0.96
Detroit †	105	41	70.1	0.00
East Portland *	90	44	.....	0.06
Gardiner	82	50	63.0	0.60
Glenora	106	40	67.0	0.35
Grants Pass a †	104	40	68.2	0.00
Grants Pass b **	96	52	72.7	0.00
Happy Valley †	95	35	65.9	0.27
Heppner †	99	44	69.9	T.
Hood River (near)	90	46	66.4	0.00
Hubbard	93	44	66.7	0.00
Jacksonville	97	44	70.2	0.04
Joseph †	93	39	65.6	0.85
Junction City **	98	50	68.6	0.00
Klamath Falls	96	45	73.4	0.40
Lafayette **	100	52	70.5	0.16
La Grande †	98	46	71.7	0.60
Langlois	99	45	64.4	0.30
Lone Rock	98	33	64.1	0.37
McMinnville a †	102	42	69.2	0.15
McMinnville b **	101	54	71.5	0.00
Merlin **	105	50	72.8	0.02
Monmouth **	99	62	74.0	0.45
Mount Angel †	95	47	68.6	0.10
Mount Hood	80	34	60.9	0.05
Nehalem	.....	.....	.....	0.59
Newbridge	104	45	73.0	0.02
Newport	88	43	59.9	0.23
Pendleton	109	44[b]	72.6[b]	0.60
Portland **	97	56	74.5	0.00
Riddles **	104	44	68.0	0.00
Roseburg **	106	48	72.4	0.24
Salem a **	86	50	66.5	0.00
Salem b †	96	50	69.8	0.00
Sheridan **	98	56	70.4	0.00
Silverton **	94	58	75.5	0.00
Siskiyou **	100	48	71.8	0.00
Sparta	96	40	70.0	0.77
Springbrook	98	47	71.0	0.04
Springfield **	98	55	71.8	0.04
The Dalles †	99	51	73.3	T.
Tillamook R'k L. H	.....	.....	.....	0.31
Toledo	92	40	62.6	0.05
Umatilla †	.....	.....	.....	0.03
Vale	100	40	71.8	0.17
West Fork **	108	46	71.1	0.11
Weston	102	41	71.2	0.02
Williams	98	40	68.1	0.00

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Pennsylvania.	°	°	°	*Ins.*
Altoona	92	53	72.7	3.18
Aqueduct	97	42	72.0	2.67
Beaver Dam †	.....	.....	.....	0.57
Blooming Grove *[1]	93	50	67.5	1.62
Bloomsburg	92	46	69.6	2.33
Brookville †	.....	.....	.....	0.40
Browers Lock	.....	.....	.....	1.24
Carlisle *a*	95	48	71.4	2.92
Cassandra	87	46	70.0	2.37
Chambersburg †	93	48	70.4	4.79
Clarion †	.....	.....	.....	0.44
Coatesville	90	48	70.6	2.89
Confluence †	.....	.....	.....	1.37
Coopersburg	87	50	70.5	2.43
Davis Island Dam †	.....	.....	.....	0.68
Doylestown	.....	.....	.....	2.77
Drifton	92°	51°	69.8°	1.15
Du Bois †	.....	.....	.....	0.74
Dyberry †	90	37	64.6	1.27
East Mauch Chunk	94	44	68.8	1.86
Easton	89	53	70.6	2.04
Edinboro *[1]	88	44	66.8	.....
Elwood Junction †	.....	.....	.....	0.39
Emporium	89	43	66.4	1.37
F'ks of Neshami'y[1]	.....	.....	70.9	2.17
Frederick	.....	.....	.....	2.75
Freeport †	.....	.....	.....	0.17
Gettysburg †	.....	.....	.....	2.03
Grampian	88	48	69.0	1.15
Greensboro †	.....	.....	.....	1.94
Greenville [2]	91	42	67.0	0.54
Hamburg	95	48	71.4	2.24
Hollidaysburg	97°	41°	68.5°	2.47
Honesdale	88	44	66.2	1.53
Huntingdon †	98	42	69.5	1.26
Johnstown †	95	45	71.2	1.20
Kane	88	41	65.8	1.45
Kennett Square	89	48	70.7	2.78
Kilmer *[6]	99	53	72.3	2.00
Lansdale	.....	.....	.....	3.10
Lebanon	90	48	69.7	4.17
Le Roy †	89	47	66.7	1.23
Lewisburg [2]	95	46	70.0	2.06
Lock Haven †	93	32	63.3	5.51
Lock No. 4 †	.....	.....	.....	1.63
Lycippus	91	49	72.0	1.09
Mahoning †	.....	.....	.....	0.30
Oil City †	.....	.....	.....	0.41
Ottsville	.....	.....	.....	1.93
Parker †	.....	.....	.....	1.10
Philadelphia *a*	.....	.....	.....	1.94
Philadelphia *b*	90	55	72.4	2.57
Phœnixville	90	48	71.2	1.64
Point Pleasant	.....	.....	.....	1.30
Pottstown	90	51	71.6	2.01
Quakertown	91	45	69.3	3.09
Reading [2]	.....	.....	70.6	2.84
Ridgway †	.....	.....	.....	1.12
Saegerstown	95	38	66.1	0.98
Salem Corners	86	46	67.6	1.57
Saltsburg †	.....	.....	.....	1.54
Seisholtzville	.....	.....	.....	1.72
Selins Grove	96	42	69.2	2.47
Shinglehouse	89	35	63.8	2.50
Smethport	88	39	64.8	3.15
Smiths Corners	.....	.....	.....	1.83
Somerset	92	40	68.3	1.05
South Eaton	87	45	67.0	2.22
State College	91	47	69.0	2.13
Stoystown †	.....	.....	.....	1.06
Swarthmore	89	53	72.2	2.63
Uniontown	92	45	71.0	1.42
Warren †	.....	.....	.....	1.31
Wellsboro *† [1]	87	33	61.5	2.05
West Chester	88	52	70.9	1.86
West Newton †	.....	.....	.....	0.46
Wilkesbarre †	92	43	70.0	1.14
York †	93	51	70.3	2.93
Rhode Island.				
Bristol	78	52	67.7	1.57
Kingston	85	42	66.6	2.74
Lonsdale	.....	.....	.....	1.90
Pawtucket	87	46	67.8	1.84
Providence *c*	88	44	67.4	2.13
South Carolina.				
Allendale †	99	63	80.2	4.92
Anderson †	.....	.....	.....	3.83
Batesburg †	100	55	77.5	5.38
Blackville †	96	62	79.5	9.31
Blenheim *[3]	.....	58	73.7	12.24
Branchville	99	66	84.8	9.20
Camden †	.....	.....	.....	6.39
Central [2]	.....	.....	73.[illegible]	4.91
Cheraw *a* †	98	60	77.6	7.93
Cheraw *b* †	.....	.....	.....	9.43
Conway †	.....	.....	.....	8.19
Cross Hill *[1]	94	64	78.2	6.76
Edisto †	.....	.....	.....	9.70
Effingham †	.....	.....	.....	11.14
Flint Hill †	92	60	76.8	7.73
Florence †	98	62	80.0	11.89
Georgetown †	93	65	78.8	7.23
Greenville †	92	56	75.4	3.03
Greenwood †	100	60	78.6	7.52
Hardeeville †	94	67	79.8	7.67

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
S. Carolina—Cont'd.	°	°	°	*Ins.*
Hollands Store †	94	61	76.7	3.90
Kingstree *a* †	96	64	80.9	5.07
Kingstree *b* †	.....	.....	.....	5.72
Little Mountain	99	58	78.9	8.13
Longshore †	95	58	76.2	3.66
McCormick *† [1]	96	63	76.7	7.76
Mount Carmel †	.....	.....	.....	7.78
Pinopolis *[1]	90	67	77.4	9.10
Port Royal †	98	69	81.7	10.97
St. Georges †	96	62	79.6	10.43
St. Matthews †	96	65	79.8	10.27
St. Stephens †	.....	.....	.....	6.40
Santuck *[1]	90	62	75.3	4.75
Shaws Fork *[1]	102	68	80.4	4.40
Simpsonville †	100	59	79.0	0.88
Society Hill †	91	61	75.9	12.26
Spartanburg †	100	60	79.0	1.49
Statesburg †	89	62	76.5	11.85
Timmonsville *[1]	96	69	81.5	.....
Trenton	92[4]	62[1]	78.8[4]	7.60
Trial †	96	64	79.2	8.11
Watts *[5]	95	61	77.5	9.22
Yorkville	93	61	76.0	4.57
South Dakota.				
Aberdeen	96	40	71.7	1.74
Alexandria †	104	38	73.2	3.56
Armour †	102	40	70.4	1.14
Ashcroft †	102	37	71.0	0.42
Bowdle *† [1]	95	53	73.8	1.06
Brookings †	97	30	67.6	0.73
Castlewood † ‡	96	32	68.9	1.81
Clark †	103	40	72.8	1.93
Cross †	89	37	64.5	2.62
De Smet †	103	40	74.1	2.15
Faulkton †	99	40	72.0	1.65
Flandreau †	104	39	72.4	3.37
Forestburg †	105	38	72.4	0.85
Forest City †	101	45	75.2	1.01
Fort Meade	97	47	73.3	0.42
Fort Sully †	102	48	77.5	0.65
Gary †	97	40	70.8	0.90
Greenwood	105	45	78.3	0.55
Highmore †	102	44	74.1	0.01
Hitchcock	.....	.....	.....	1.74
Hotch City †	102	41	76.2	0.15
Howard †	100	37	72.2	0.33
Kimball †	104	48	76.2	0.43
Millbank †	97	43	71.4	0.76
Oelrichs †	102	41	72.8	0.22
Parker †	102	44	73.6	1.30
Piedmont	.....	.....	.....	0.92
Plankinton †	105	42	75.4	0.66
Rosebud †	104	38	75.0	1.30
Shiloh †	105	36	74.0	0.01
Silver City	.....	.....	.....	3.76
Sioux Falls †	102	39	72.9	1.29
Spearfish †	99	49	73.8	0.33
Tyndall †	103	44	76.0	2.07
Webster †	99	37	71.7	1.60
Wentworth †	100	36	70.6	1.26
Wessington †	.....	.....	.....	0.91
Wessington Sp'gs †	101	44	75.4	0.82
Tennessee.				
Andersonville *[1]	98	62	75.4	3.25
Arlington †	98	58	77.0	3.23
Ashwood *† [1]	99	60	77.9	3.40
Bolivar †	97	50	77.2	2.22
Bristol †	90	53	72.3	7.06
Brownsville †	102	58	79.6	2.88
Carthage †	.....	.....	.....	5.55
Clarksville	105	65	83.9	1.87
Clinton †	.....	.....	.....	1.95
Columbia †	.....	.....	.....	3.29
Covington *a* †	95	59	77.3	1.92
Covington *b* †	100	56	79.4	1.82
Dyersburg †	99	52	77.8	2.56
Florence Station †	100	56	77.9	1.93
Franklin †	100[1]	62[1]	78.3[1]	4.50
Greeneville †	92	52	73.3	6.66
Harriman †	104	55	78.0	1.47
Hohenwald	.....	.....	.....	3.67
Jacksboro *[4]	95	54	71.8	3.08
Jackson *[1]	99°	60°	77.1°	4.07
Johnsonville †	.....	.....	.....	2.15
Loudon †	.....	.....	.....	4.35
Lynnville *[1]	98	60	75.6	6.13
Milan †	99	55	76.6	5.20
Newport [2]	98[f]	57*	74.2	4.29
Nunnelly *[1]	99	60	77.2	2.33
Palmetto †	.....	.....	.....	4.14
Parksville *[1]	94	60	75.0	2.94
Riddleton †	101	55	77.6	5.32
Rockwood †	.....	.....	.....	1.14
Rogersville *[1]	96	52	72.2	5.74
Rugby *[1]	96	56	74.0	6.31
Savannah *[1]	98	63	78.5	6.33
Springdale *[1]	94	56	78.3	4.05
Trenton	99	57	76.8	2.58
Waynesboro *[1]	98	58	74.1	7.91
Texas.				
Alice †	103	67	83.6	6.20
Arlington †	100	61	79.5	3.18
Arthur City †	.....	.....	.....	2.44
Aurora *[1]	102	62	79.1	5.07
Austin *a* †	97	67	82.4	5.30

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Texas—Cont'd.	°	°	°	*Ins.*
Austin *b* *[5]	96	68	81.8	.....
Beaumont *[1]	84	74	77.9	8.77
Bellville *[4]	.....	78	80.9	7.46
Belton †	102	65	81.4	3.88
Boerne *† [3]	101	65	76.3	6.87
Brady †	95	61	78.2	2.69
Brazoria †	91	69	78.9	11.50
Brenham †	98	68	82.1	8.62
Burnet *† [1]	93	67	80.0	6.03
Camp Eagle Pass	105	66	84.2	5.97
Childress †	98	59	78.7	2.26
Coleman	.....	.....	.....	7.77
Columbia †	93	68	80.0	7.26
Corsicana *a* †	.....	.....	.....	4.37
Corsicana *b* †	96	60	78.8	5.69
Cuero †	96	70	82.2	6.33
Dallas †	99	58	78.8	5.44
Devine	95°	62°	78.9°	7.95
Durham †	.....	.....	.....	2.65
Duval *[1]	103	71	84.7	6.65
Eastland *† [1]	103	63	77.9	9.60
Estelle †	102	61	80.3	5.06
Flower Bluff †	89	71	82.4	8.11
Forestburg †	96	60	77.8	3.51
Fort Brown †	95	69	82.3	2.78
Fort Clark	102	67	81.4	8.55
Fort Hancock	104	50	77.3	2.07
Fort McIntosh	101	70	84.7	4.19
Fort Ringgold †	100	70	84.6	3.50
Fredericksburg † [1]	96*	62	78.5	5.11
Golindo	.....	.....	.....	4.20
Graham †	104	58	79.6	3.54
Grape Vine †	101	60	79.6	3.94
Hale Center †	90	60	74.1	4.00
Hallettsville †	98	63	79.5	8.91
Happy	94	51	72.5	3.63
Hartley †	102	40	70.5	1.50
Haskell †	98	62	80.8	2.09
Hearne †	101	62	78.8	5.20
Hewitt	.....	.....	.....	2.90
Houston †	97	65	78.8	5.75
Huntsville †	96	64	81.1	6.13
Jefferson *[1]	98	66	80.2	4.05
Kent	.....	.....	.....	2.89
Lampasas *[1]	101	66	79.7	4.87
Leakey †	93	69	80.1	9.80
Llano *† [3]	105	69	82.3	5.70
Longview †	96	61	80.8	6.34
Luling	100	67	81.7	5.14
Marshall †	93	60	78.0	4.75
Menardville *† [1]	96	64	76.3	4.04
Midland †	101	52	77.9	0.97
Mountain Spring †	100	60	79.0	3.38
New Braunfels †	95	65	78.9	8.12
Ochiltree †	.....	.....	.....	5.03
Orange †	94	66	80.2	11.64
Paris †	100	58	79.9	2.13
Roby †	103	55	75.2	8.10
Rockport *[1]	94	72	84.1	.....
Rock Springs †	99	.....	.....	7.91
Round Rock †	104	68	85.1	4.43
San Marcos *a* †	.....	.....	.....	3.18
San Marcos *b* †	98	62	80.6	3.34
Sherman † *	98	58	79.0	2.48
Sierra Blanca †	100	60	77.8	2.01
Silver Falls †	94	56	74.0	4.21
Sugar Land †	93	66	79.3	7.61
Temple †	99	62	80.6	2.44
Tyler †	94	60	79.0	2.69
Waco †	96	65	81.8	8.00
Weatherford †	96	59	78.4	6.60
Wichita Falls †	104	62	82.8	3.19
Utah.				
Alpine City †	.....	.....	.....	1.65
Blue Creek *[8]	106	63	80.6	0.00
Castle Gate †	94	52	71.5	0.19
Cisco †	102	54	78.4	0.20
Coalville †	95	32	65.5	1.32
Corinne *[8]	110	65	82.6	0.10
Emery	.....	.....	.....	2.37
Fillmore †	104	42	74.4	1.19
Fort Du Chesne †	96	46	72.0	0.30
Glendale *† [1]	102	51	66.3	0.75
Grouse Creek *† [1]	98	46	65.6	0.46
Heber †	91	36	65.6	1.16
Kelton *[8]	105	62	78.6	0.00
Koosharem	88	39	63.0	1.35
Lake Station *[1]	99	55	76.8	.....
Levan † [2]	.....	.....	71.0	0.89
Loa †	90	39	64.4	1.56
Logan †	94	44°	66.4°	0.58
Losee †	95	46	68.3	1.70
Manti †	102	50	76.0	0.17
Millville †	.....	.....	.....	0.07
Moab †	101	55	77.2	0.66
Mount Pleasant *† [1]	98	57	72.5	0.40
Ogden *[8]	98	60	77.7	0.65
Ogden *b* *† [1]	91	69	79.3	0.64
Parowan †	91	44	68.3	1.40
Promontory *[8]	99	56	74.3	2.10
Randolph †	91	35	64.1	0.33
St. George †	107	47	79.2	0.49
Scipio †	.....	.....	.....	1.53
Scofield †	89	25	58.0	2.04
Singletree *† [1]	88	42	59.1	1.11

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Utah—Cont'd.	°	°	°	*Ins.*
Snowville †	93	46	69.5	0.14
Soldier Summit †	83	26	54.3	0.17
Terrace *[8]	99	68	82.1	0.00
Thistle †	102	44	70.4	1.24
Vermont.				
Brattleboro	90	40	67.4	0.32
Burlington †	83	46	66.0	1.49
Cornwall	86	42	64.9	2.35
Enosburg Falls †	.....	.....	.....	3.09
Hartland †	86	34	60.4	2.58
Irasburg †	82	33	59.7	2.89
Jacksonville	87	29	59.2	0.76
Norwich *[6]	83[1]	38	59.3	2.55
St. Johnsbury	83	35	61.4	2.92
Simonsville	86	33	60.7	0.61
Strafford *† [1]	80	41	62.0	2.95
Vernon *[6]	89	37	67.5	0.57
Wells	84	37	63.9	2.41
Woodstock	87	36	63.1	2.95
Virginia.				
Abingdon †	.....	.....	.....	5.45
Alexandria	96	55	75.6	1.38
Ashland †	94	55	73.0	4.44
Avon †	100	51	73.0	3.21
Bedford City †	92	56	72.8	4.54
Big Stone Gap †	93	46	69.7	4.17
Birdsnest *† [1]	90	61	74.5	7.85
Blacksburg	86	48	68.8	2.00
Buchanan †	.....	.....	.....	2.40
Buckingham †	94	52	72.8	3.03
Cape Charles † [1]	89*	58	74.8	1.59
Christiansburg †	.....	.....	.....	1.44
Clarksville †	.....	.....	.....	3.59
Dale Enterprise †	96	46	71.3	1.70
Danville †	.....	.....	.....	3.31
Fredericksburg †	96	54	74.0	3.75
Grahams Forge	92[e]	50[d]	72.0[d]	1.61
Hampton	93	61	75.1	9.99
Hot Springs	88	46	66.8	1.03
Houston †	98	58	75.0	2.72
Irwin †	95	55	73.9	4.54
Lexington †	94	52	72.4	1.29
Marion †	90[d]	51[d]	70.3[d]	3.43
Nottoway	99	54	76.0	2.73
Petersburg †	95	53	74.6	3.56
Richmond † (near)	99	56	74.6	4.93
Richmond *b* †	.....	.....	.....	4.23
Rocky Mount †	94	57	75.4	1.32
Salem †	93	57	74.8	1.96
Smithville †	87	64	75.2	2.84
Spottsville †	93	54	73.4	6.03
Stanardsville †	95	55	72.5	3.91
Staunton †	94	50	72.9	2.13
Stephens City †	94	53	73.8	1.78
Warrenton †	93	55	73.1	1.67
Warsaw †	95	54	73.6	2.98
Whittles Depot †	101	55	75.6	2.66
Wytheville †	84	48	69.0	2.95
Washington.				
Aberdeen †	91	46	64.4	0.25
Anacortes	.....	.....	.....	0.12
Blaine †	84	39	62.2	0.03
Bridgeport †	102	35	73.0	0.00
Chehalis †	93	43	66.8	0.14
Colfax †	96	42	66.4	0.03
Conconully †	99	42	70.8	0.01
Davenport †	95	43	68.6	0.11
Dayton †	101	44	73.1	T.
East Sound †	81	47	61.3	0.14
Elbe	.....	.....	.....	0.64
Ellensburg †	90	42	68.3	0.00
Ferry †	93	44	66.8	0.25
Fort Simcoe	96	48	73.8	0.00
Fort Spokane	104	45	71.8	0.01
Fort Townsend	82	46	62.8	0.37
Grand Mound *	93	58	.....	0.05
Hunters †	91	36	63.0	0.22
Kennewick †	107	53	78.9	T.
Lakeside †	97	55	76.5	0.06
Lapush †	83	45	60.2	0.62
Madrone *† [1]	85	45	63.2	0.08
Moxee Valley †	100	45	72.8	T.
Olga †	79	49	62.1	0.13
Pine Hill *[1]	97	55	72.2	T.
Pomeroy †	90	42	72.2	0.00
Pullman †	98	40	68.1	0.10
Rosalia †	97	39	71.8	0.03
Silver Creek *[1]	93	45	63.8	0.50
Snohomish †	85	44	64.0	0.03
Stillaguamish †	85	41	62.2	0.00
Sulphur †	112	48	77.4	0.00
Tacoma †	87	50	65.2	0.03
Union City *† [1]	85	48	62.7	0.05
Waterville †	98	42	69.6	0.06
Wenatchee Lake †	96	38	63.6	0.10
West Ferndale †	92	37	61.4	T.
West Virginia.				
Beverly †	90	48	71.6	3.15
Bloomery †	90	44	67.4	1.13
Buckhannon *a* †	.....	.....	.....	2.07
Buckhannon *b* †	92[1]	42[1]	68.0[1]	.....
Burlington †	96	45	71.9	2.52
Central Station *† [1]	95	45	73.6	2.64
Charleston †	.....	.....	.....	2.05
Cloverdale †	.....	.....	.....	5.15

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
W. Virginia—Con'd.	°	°	°	*Ins.*
Davis †	85	38	62.8	2.22
Elkhorn †	92	49	70.6	1.13
Ella †	93	52	73.8	1.37
Fairmont †	.....	.....	.....	1.57
Glenville †	93	47	71.0	2.05
Grafton †	91	46	70.4	3.05
Harpers Ferry †	.....	.....	.....	0.65
Hinton †	.....	.....	.....	1.58
Huntington †	96[f]	52[e]	73.4[k]	2.56
Madison †	91	56	71.0	3.40
Martinsburg †	93	51	71.2	1.11
Monarch *† [1]	93	54	73.9	2.79
Morgantown a †	.....	.....	.....	1.78
Morgantown b †	97	46	71.6	1.77
New Cumberland †	98	44	71.8	0.27
New Martinsv'le †	97	48	72.8	1.88
Nuttallburg †	103	41	72.5	2.07
Philippi †	.....	.....	.....	1.35
Pleasant Hill *[3]	88	47	69.9	3.32
Point Pleasant †	97	51	74.8	1.75
Powellton	93	48	71.8	2.25
Raleigh †	89	45	68.5	0.51
Rowlesburg †	.....	.....	.....	2.29
Sandyville †	95	46	71.9	3.20
Spencer †	98	50	75.6	0.60
Tannery *[1]	90	54	70.8	.....
Weston a †	.....	.....	.....	2.64
Weston b *[1]	92	50	73.6	.....
Wheeling a †	.....	.....	.....	1.00
Wheeling b †	95	51	72.9	1.43
Wisconsin.				
Amherst	96	40	68.4	1.44
Antigo †	98	34	66.4	1.00
Baraboo †	.....	.....	.....	0.08
Barron †	90	37	66.8	1.30
Bayfield	89	42	65.6	1.82
Beaver Dam	98	52	72.8	0.39
Belleville	100	40	69.5	1.11
Beloit	97	47	71.4	1.12
Black River Falls †	100	32	69.6	0.00
Cadiz *[3]	.....	48	65.6	1.48
Centralia	97	38	69.2	0.13
Chilton	97	45	70.0	0.37
Chippewa Falls †	.....	.....	.....	0.82
City Point *[3]	97	37	69.6	1.15
Columbus	100	40	68.4	1.50
Crandon †	89	38	67.5	0.52
Delavan †	101	40	70.6	0.50
Depere †	91	44	67 8	1.01
Florence †	89	29	62.2	0.75
Fond du Lac †	100	41	69.4	1.37
Grantsburg †	98	38	70.6	0.72
Hartford †	.....	.....	.....	0.70
Harvey †	98	41	69.2	1.88
Hayward †	93	39	65.8	0.72
Hillsboro	102	34	69.7	T.
Janesville	99	44	70.9	1.00
Juneau †	101	42	71.2	T.
Wisconsin—Cont'd.	°	°	°	*Ins.*
Kenosha *[10]	100	60	76.2	.....
Koepenick *† [1]	94	46	65.2	0.60
Lancaster †	120	44	72.0	1.35
Lincoln † [2]	.....	.....	70.8	1.28
Madison †	96	48	71.6	0.54
Manitowoc †	89	44	65.2	0.56
Meadow Valley †	95	34	65.8	0.36
Medford b †	94	36	66.4	1.75
Menomonie	100	34	68.1	0.50
Neillsville †	94	34	67.8	0.22
New Holstein †	95	44	68.4	0.45
Oconomowoc †	94	45	70.4	0.46
Oconto	91	37	64.4	0.52
Osceola †	102	34	69.0	0.65
Oshkosh †	94	46	70.6	0.65
Pepin	100	41	69.8	0.09
Portage †	.....	.....	.....	0.77
Port Washington	96	45	67.8	1.65
Prairie du Chien	106	38	72.6	1.13
Racine *[10]	95	48	68.5	.....
Reedsburg †	101	39	71.6	0.04
Royalton	94	39	68.0	1.29
Sharon †	98	42	69.7	0.80
Shawano	92	38	65.2	0.90
Sheboygan *[10]	87	54	68.6	.....
Spooner †	95	40	68.3	0.40
Stevens Point †	93	40	68.6	1.36
Sturgeon B. Canal *[10]	84	47	64.4	.....
Two Rivers *[10]	86	40	65.6	.....
Valley Junction †..	100	31	68.2	0.43
Viroqua	100	40	71.5	T.
Watertown †	94	41	69.2	0.66
Waukesha †	96	46	70.7	1.73
Westfield †	100	42	70.6	0.43
Weston *† [3]	95	38	68.0	0.40
Wyoming.				
Big Horn Ranch †..	84	35	62.2	1.10
Camp Pilot Butte †.	96	41	68.2	0.70
Fort McKinney	92	52	72.6	0.03
Fort Washakie	90	43	67.6	0.09
Fort Yellowstone †	89	49	68.2	1.75
La Barge †	87	32	62.0	0.32
Laramie	85	36	62.2	1.26
Lusk †	95	38	69.8	0.58
Saratoga †	86	34	62.8	0.80
Sheridan	96	43	68.5	0.11
Sundance	91	42	68.8	0.37
Wheatland †	93	41	70.6	0.00
Mexico.				
Ciudad P. Diaz	103	70	84.8	6.70
Leon de Aldamas	85	53	69.8	4.98
Mazatlan	90	74	83.1	5.19
Mexico	79	51	64.3	1.57
Puebla	81	54	66.6	1.87
West Indies.				
Grand Turk Island	.....	.....	.....	1.47
Hamilton, Ber	86	73	79.8	6.07

Reports received too late to be used in general discussion of weather for August, 1894.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Arkansas.				
Osceola	98	58	77.6	1.31
California.				
Chino *[6]	110	54	73.0	.....
Cloverdale *[1]	107	52	76.8	0.00
Hendersons Ranch	.....	.....	.....	0.00
Mount Frazier	.....	.....	.....	0.00
Pilot Creek	.....	.....	.....	0.00
Saticoy	.....	.....	.....	0.00
West Point	.....	.....	.....	0.00
Idaho.				
Martin †	90	39	65.3	0.35
Kansas.				
Grinnell *[3]	110	64	81.9	1.25
Westmoreland [2]	.....	.....	83.0	T.
Michigan.				
Grande Pointe au Sable *[10]	84	45	62.8	.....
Mississippi.				
Greenville a	94	65	79.0	5.38
Missouri.				
East Lynne *[3]	101	52	71.0	1.86
Marble Hill	.....	45	.....	1.13
Nebraska.				
Curtis *[5]	101	48	78.1	T.
Haigler *[1]	98	50	75.9	0.93
Nevada.				
Empire Ranch	103	41	71.0	0.42
Marlette Lake	.....	.....	.....	0.23
New York.				
Humphrey	88	42	66.1	2.50
South Dakota.				
Farmingdale	.....	.....	.....	0.24
Frankfort	98	35	72.0	2.09
Rochford	.....	.....	.....	0.79
Yankton	102	47	75.5	2.04
Texas.				
Coldwater	.....	.....	.....	6.61
College Station	101	64	79.8	7.01
Gainesville	100	61	79.8	2.59
San Antonio	96	66	79.6	8.92
Victoria *[5]	91*	71[f]	82.1[f]	6.94
Mexico.				
Topolobampo *[3]	95	78	83.6	4.43

Received too late for publication in July, 1894.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Alaska.				
Coal Harbor †	72	37	52.0	0.88
Arizona.				
Dudleyville	107	70	86.4	4.02
Arkansas.				
Clarksville	.....	.....	.....	2.47
California.				
Davisville b	101	50	75.0	T.
Deep Creek	.....	.....	.....	0.09
Little Bear Valley	.....	.....	.....	0.04
Lower Holcomb Valley	.....	.....	.....	0.03
Morses House	.....	.....	.....	0.02
California—Cont'd.	°	°	°	*Ins.*
Placerville b	98	44	71.0	T.
Pomona (near)	102	50	78.0	0.00
Redlands a	.....	.....	.....	0.00
Colorado.				
Fort Collins	94	46	69.0	1.72
Florida.				
Myers	90	70	80.4	5.15
Indiana.				
Shelbyville	96[d]	52[d]	77.4[d]	2.17
Iowa.				
Fayette	107	42	75.0	0.21

Reports received too late, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Missouri.	°	°	°	*Ins.*
Warrensburg *[1]	98	64	77.5	3.33
Nevada.				
Lovelock *[2]	104	74	78.4	T.
New York.				
Turin	89	46	66.2	2.59
Ohio.				
Elyria	100	48	74.4	2.67
Montpelier	102	45	73.5	0.70
Ridge *[3]	100	50	76.3	.....
Pennsylvania.				
Doylestown	.....	.....	.....	2.06
Frederick	.....	.....	.....	3.98
Lansdale	.....	.....	.....	3.19
Pennsylvania—Con.	°	°	°	*Ins.*
Ottsville	.....	.....	.....	2.41
Point Pleasant	.....	.....	.....	2.12
Seisholtzville	.....	.....	.....	1.88
Smiths Corners	.....	.....	.....	2.63
South Dakota.				
Spearfish	99	49	71.3	1.35
Texas.				
Menardville *[1]	102	71	82.8	0.75
Utah.				
Logan	92	48	69.1	0.28
West Virginia.				
Weston b	94	56	75.5	.....

EXPLANATION OF SIGNS.

*Extremes of temperature from observed readings of dry thermometer.

† Weather Bureau instruments.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. ÷ 4.
[2] Mean of 8 a. m. + 8 p. m. ÷ 2.
[3] Mean of 7 a. m. + 7 p. m. ÷ 2.
[4] Mean of 6 a. m. + 6 p. m. ÷ 2.
[5] Mean of 7 a. m. + 2 p. m. ÷ 2.
[6] Mean from readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[8] Mean of 7 a. m. + 2 p. m. + 9 p. m. ÷ 3.
[9] Mean of sunrise and noon.
[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An Italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small Roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance, "[a]" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

Corrections: July, 1894, page 291, under Sunshine, 17 and 21 stations should be 18 and 20; page 303, Table IV *a*, sunshine record; instrument at Tucson, Ariz., should read P instead of T. June, 1894, page 242, under head of years of lowest minimum temperature for June, Cleveland, Ohio, should read 38 instead of 48.

TABLE III—*Data from Canadian stations for the month of August*, 1894.

Station.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches.*	*Inches.*	
St. Johns, N. F	29.82	29.96	— .03	60.7	— 0.3	4.55	.....	w.
Sydney, N. S	29.90	29.96	.00	63.0	+ 1.0	4.15	+ 0.25	sw.
Grindstone, G. St. L	29.85	29.88	.....	60.4	.....	2.84	.....	s.
Halifax, N. S	29.84	29.97	— .01	61.9	— 1.1	4.00	+ 0.44	n.
Grand Manan, N. B	29.92	29.97	.....	60.3	.....	1.92	— 1.17	w.
Yarmouth, N. S	29.92	30.00	.00	58.0	— 1.5	1.24	— 1.98	sw.
Saint Andrews, N. B	29.90	29.95	.....	58.8	.....	1.92	— 0.93	nw.
Charlottetown, P. E. I	29.90	29.94	.....	63.0	.....	2.75	— 0.65	w.
Chatham, N. B	29.91	29.93	— .01	60.8	— 0.2	3.82	— 0.32	w.
Father Point, Que	29.89	29.92	+ .01	53.1	— 2.9	2.38	— 0.18	w.
Quebec, Que	29.64	29.96	+ .01	58.6	— 4.4	2.75	— 0.67	w.
Montreal, Que	29.76	29.96	+ .01	62.0	— 4.5	1.79	— 0.38	sw.
Rockliffe, Ont	29.47	29.97	+ .03	56.4	— 3.6	1.30	— 1.63	nw.
Kingston, Ont	29.68	29.99	+ .02	64.5	— 2.0	0.35	— 1.64	sw.
Toronto, Ont	29.64	30.02	+ .03	64.3	— 1.2	0.37	— 2.21	n.
White River, Ont	28.70	30.03	.....	53.4	— 2.7	3.49	+ 0.43	n.
Port Stanley, Ont	29.40	30.03	+ .04	64.4	.....	0.27	— 2.12	nw.
Saugeen, Ont	29.32	30.02	+ .04	61.8	— 0.7	0.77	— 1.01	w.
Parry Sound, Ont	29.32	30.00	+ .03	60.3	— 1.7	2.19	— 0.49	w.
Port Arthur, Ont	29.31	29.99	+ .00	57.6	— 1.4	1.17	— 1.20	ne.
Winnipeg, Man	29.18	29.98	+ .07	64.2	+ 2.7	0.77	— 2.69	ne.
Minnedosa, Man	28.21	29.95	+ .00	63.0	+ 4.5	1.40	— 0.46	w.
Qu'Appelle, Assiniboia	27.76	29.94	+ .04	65.6	+ 5.1	1.31	— 0.16	s.
Medicine Hat, Assiniboia	27.68	29.90	.00	68.6	+ 3.1	0.39	— 0.60	w.
Swift Current, Assiniboia	27.45	29.93	+ .01	68.4	+ 5.9	0.56	— 1.18	s.
Calgary, Alberta	26.48	29.92	+ .02	62.3	+ 3.8	1.47	— 0.30	w.
Prince Albert, Sask	28.48	29.95	.....	62.0	.....	0.72	.....	nw.
Edmonton, Alberta	27.67	29.94	+ .06	61.6	+ 4.0	2.03	+ 0.20	se.
Battleford, Saskatchew'n	28.23	29.90	.....	65.6	.....	1.61	.....	nw.
Spences Bridge, B. C	29.14	29.93	.....	73.1	.....	0.35	.....	sw.
Esquimault, B. C	30.00	30.03	.....	58.1	.....	0.19	.....	s.
July, 1894.								
Anticosti	29.82	29.85	+ .01	57.8	— 1.6	2.91	.....	se.
Bird Rocks	29.80	29.92	.....	57.8	.....	2.39	.....	s.

TABLE IV *a.*—*Hourly sunshine as deduced from sunshine recorders, August*, 1894.

Station.	Instrument.	Percentage for each hour of local mean time ending with the respective hour.																Monthly summary.			
		A. M.								P. M.								Instrumental record.			Personal estimate.
		5	6	7	8	9	10	11	Noon.	1	2	3	4	5	6	7	8	Actual.	Possible.	Per cent of possible.	
																		Hours.	*Hours.*		
Baltimore, Md*	T.	.....	38	40	52	63	70	85	88	86	88	87	87	87	77	55	57	306.6	425.4	72	63
Bismarck, N. Dak	P.	66	45	32	55	72	82	82	81	73	74	68	64	56	42	44	75	274.7	441.5	62	70
Boston, Mass	T.	30	23	46	52	69	79	82	83	83	80	79	72	59	54	32	7	274.8	431.0	64	44
Buffalo, N. Y	T.	23	25	24	48	78	84	92	94	90	95	88	81	75	50	32	35	297.4	431.4	69	48
Chicago, Ill	T.	59	42	40	46	66	81	85	93	99	95	94	85	69	56	67	43	313.1	428.3	73	54
Cincinnati, Ohio	P.	.....	73	75	83	83	91	90	84	85	90	87	84	74	67	74	96	345.6	422.9	82	67
Cleveland, Ohio	P.	.....	40	47	58	61	71	70	68	74	72	75	71	67	54	52	48	270.1	428.8	63	54
Colorado Springs, Colo.	T.	.....	77	75	76	86	94	89	89	82	70	66	53	45	43	38	29	297.8	424.9	70	54
Columbus, Ohio	T.	.....	42	48	64	78	94	97	95	98	94	91	83	73	59	48	33	326.0	424.6	77	55
Denver, Colo	P.	.....	49	68	80	85	86	89	91	75	72	64	60	58	45	37	21	292.8	423.6	69	56
Des Moines, Iowa	T.	99	57	50	59	74	84	91	94	97	95	85	84	73	67	63	98	330.4	428.7	77	77
Detroit, Mich	T.	15	11	14	32	63	75	80	91	85	88	85	77	58	31	14	25	249.7	431.6	58	54
Dodge City, Kans	P.	.....	68	83	86	81	83	80	75	73	80	81	83	78	65	53	55	323.1	421.1	77	67
Eastport, Me	P.	62	32	30	37	46	55	62	68	63	65	58	56	39	35	26	38	209.6	436.4	48	39
Galveston, Tex.	P.	.....	22	44	49	54	51	59	55	55	54	55	58	58	47	22	.....	206.4	408.4	51	50
Helena, Mont	P.	83	77	76	84	83	85	85	83	76	76	77	75	64	54	52	67	328.2	440.6	74	67
Kansas City, Mo	P.	.....	82	75	82	86	86	89	88	85	85	88	95	78	61	66	79	348.0	424.5	82	75
Key West, Fla	T.	.....	74	77	77	70	80	86	87	86	87	85	73	73	77	60	.....	318.2	402.7	79	47
Little Rock, Ark	T.	.....	53	55	56	67	75	79	79	83	75	70	60	52	37	36	.....	263.8	416.1	63	40
Memphis, Tenn	P.	.....	28	37	55	63	63	62	69	75	75	77	70	50	38	23	.....	238.6	417.1	57	54
New Haven, Conn	T.	0	24	26	57	78	85	85	86	91	92	96	92	78	55	38	55	303.8	429.1	71	60
New Orleans, La	T.	.....	43	44	63	79	84	84	86	79	75	74	65	56	42	22	.....	269.4	408.6	66	65
New York, N. Y.	T.	0	17	26	53	70	78	89	95	94	94	92	90	82	53	21	27	294.4	427.5	69	51
Philadelphia, Pa	T.	.....	32	45	49	65	77	85	88	92	92	92	91	76	67	40	59	304.4	425.0	72	45
Portland, Me	T.	.....	5	27	53	64	75	87	85	85	83	78	77	65	45	24	27	264.6	432.0	61	35
Portland, Oreg	P.	34	59	59	52	58	67	76	73	80	84	86	86	82	75	74	65	314.4	436.7	72	75
Rochester, N. Y	T.	41	36	35	43	58	64	69	75	70	68	65	64	48	35	32	61	236.3	432.1	55	55
St. Louis, Mo	T.	.....	69	70	76	85	90	94	89	88	88	94	91	85	79	66	60	352.8	423.1	83	70
Salt Lake City, Utah	T.	100	69	61	80	87	88	87	88	91	92	84	86	73	56	48	47	333.6	428.8	78	63
San Diego, Cal	P.	.....	6	18	31	53	72	84	85	86	85	87	86	83	62	51	.....	270.3	415.5	65	68
San Francisco, Cal	P.	.....	3	9	23	31	54	73	79	83	82	84	80	70	54	16	41	228.7	421.6	54	56
Santa Fe, N. Mex	P.	.....	32	51	67	83	82	81	64	63	62	48	42	45	36	17	.....	235.5	418.8	56	42
Savannah, Ga	P.	.....	38	47	59	66	71	69	64	68	68	61	53	42	24	19	.....	226.1	415.9	54	52
Spokane, Wash	P.	47	41	44	69	72	81	86	79	68	75	76	78	72	62	56	32	300.2	442.0	68	67
Tucson, Ariz	P.	.....	45	48	62	77	81	78	78	88	88	76	67	62	34	31	.....	275.5	413.5	67	46
Vicksburg, Miss	T.	.....	40	39	44	67	83	84	91	94	90	83	72	63	47	28	.....	279.4	413.2	68	65
Washington, D. C	P.	.....	20	45	65	70	69	73	79	81	77	79	73	69	51	43	47	274.1	423.6	65	55
Wilmington, N. C	T.	.....	30	29	34	57	64	63	70	63	54	50	35	20	14	15	.....	180.8	416.5	43	55

*From August 13 to 31, inclusive, the values were determined from eye observation.

TABLE IV *b.*—*Hourly precipitation, August*, 1894.

Station.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Total.
Atlanta, Ga	0.02	0.03	T.	0.01	T.	T.	0.05	0.09	0.03	0.02	0.27	0.01	0.37	0.30	0.07	0.05	0.49	0.48	0.33	0.35	0.50	0.01	0.06	0.21	3.75
Baltimore, Md	0.05	0.00	0.04	0.03	0.00	0.01	0.00	0.10	0.03	0.04	0.07	0.02	0.02	0.01	0.01	0.09	0.08	0.04	T.	0.02	0.04	0.31	0.24	0.04	1.41
Bismarck, N. Dak	0.00	0.00	0.00	0.00	0.00	0.00	0.12	T.	0.00	0.00	T.	T.	0.00	0.00	0.00	0.00	0.01	0.22	0.01	0.00	0.00	0.02	0.00	0.01	0.41
Boston, Mass	T.	T.	T.	0.01	0.29	0.16	0.04	0.02	0.04	T.	T.	0.02	1.12	0.75	0.45	0.06	T.	T.	0.00	T.	0.01	T.	0.02	0.01	3.00
Buffalo, N. Y	0.00	0.00	0.00	0.01	0.05	0.01	0.00	0.00	0.00	0.20	0.01	0.00	0.01	0.06	T.	0.02	0.02	T.	T.	0.00	0.00	0.00	T.	0.17	0.56
Chicago, Ill	0.00	0.00	0.00	0.03	0.00	0.05	0.01	0.06	0.18	0.22	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Cincinnati, Ohio	0.04	0.02	0.00	0.00	T.	T.	0.00	T.	0.00	0.00	T.	0.00	0.01	T.	T.	0.13	T.	0.14	0.18	0.85	0.08	0.34	0.03	0.00	1.82
Cleveland, Ohio	0.03	0.02	T.	T.	0.01	0.01	T.	T.	T.	0.00	T.	T.	T.	0.31	0.25	0.39	0.01	0.00	T.	T.	0.00	T.	0.00	0.00	1.05
Denver, Colo	0.02	0.00	0.00	0.05	0.00	0.00	0.00	0.02	T.	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.75	0.02	0.01	0.05	0.68	0.14	0.03	0.02	1.84
Detroit, Mich	0.00	0.00	0.00	0.00	0.00	T.	0.05	0.01	0.10	T.	0.00	T.	T.	T.	0.00	T.	0.00	T.	0.00	T.	0.00	0.00	0.00	0.00	0.16
Dodge City, Kans	0.08	T.	0.02	T.	T.	T.	T.	0.01	T.	T.	T.	0.00	T.	T.	0.00	T.	0.01	0.00	0.00	T.	T.	0.00	T.	0.03	0.15
Duluth, Minn	0.02	0.08	0.16	0.15	0.01	0.00	0.00	0.00	T.	0.01	0.01	T.	0.09	0.00	0.00	0.00	0.00	0.37	0.08	0.03	T.	0.01	T.	0.00	1.02
Eastport, Me	0.12	0.30	0.14	0.05	0.09	0.01	0.00	0.02	0.00	0.00	0.02	0.02	0.01	0.04	0.01	0.01	0.03	T.	0.07	0.09	0.03	0.00	0.12	0.15	1.33
Galveston, Tex	0.20	0.20	0.20	0.20	0.20	0.22	0.47	0.23	1.26	0.27	0.60	1.61	0.15	0.19	0.04	0.39	0.53	0.12	T.	0.07	0.50	0.77	0.21	0.46	9.09
Indianapolis, Ind	0.00	0.00	0.15	0.02	0.00	0.04	0.07	0.01	0.00	0.02	0.05	0.02	0.00	0.00	0.93	T.	0.10	0.00	0.05	0.10	0.07	0.02	T.	T.	1.67
Jacksonville, Fla	0.49	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.17	1.11	0.44	1.85	2.10	0.68	0.90	0.94	0.31	0.04	0.00	0.08	9.24
Jupiter, Fla	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.20	T.	0.24	0.50	0.30	0.05	0.00	0.00	0.00	1.54
Kansas City, Mo	0.01	0.04	0.03	T.	0.00	0.00	T.	T.	0.00	0.00	0.00	0.00	T.	T.	T.	0.00	0.00	0.00	T.	T.	T.	T.	0.05	T.	0.13
Key West, Fla	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.08	0.53	0.40	0.02	0.06	0.11	T.	0.51	0.38	0.01	0.03	0.07	0.14	0.00	0.00	4.33
Marquette, Mich	0.01	0.06	0.04	T.	0.09	0.04	T.	0.01	0.02	0.05	0.10	0.11	0.09	0.13	0.05	0.07	0.01	T.	0.01	T.	0.01	T.	0.60	0.25	1.75
Memphis, Tenn	T.	0.12	0.32	0.21	0.16	0.26	0.09	0.12	0.12	0.07	0.47	0.10	T.	0.03	0.07	0.05	0.05	0.05	0.13	1.49	0.97	0.21	0.04	T.	5.14
Milwaukee, Wis	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	T.	T.	T.	0.00	0.00	0.05	0.02	0.00	T.	0.01	0.00	0.00	0.00	0.00	0.11	0.29
Nantucket, Mass	0.09	0.09	0.10	0.08	0.18	0.12	0.13	0.11	0.15	0.01	0.01	0.02	0.01	T.	T.	0.04	0.02	0.01	0.02	T.	T.	0.00	0.00	0.01	1.20
Nashville, Tenn	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.05	0.03	0.07	0.03	0.79	0.54	0.35	0.22	0.04	0.03	0.02	T.	0.00	0.00	T.	2.43
New Orleans, La.*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York, N. Y	T.	T.	0.02	0.00	0.01	0.05	0.02	0.12	0.72	0.04	T.	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.40	0.06	T.	T.	T.	T.	1.49
Norfolk, Va	0.17	0.12	0.15	0.17	0.31	0.26	0.20	0.03	0.08	0.01	0.18	0.96	2.23	0.58	0.05	0.12	0.34	0.49	0.26	0.74	0.37	0.15	0.30	0.10	8.40
Omaha, Nebr	0.00	0.01	0.01	0.01	0.13	0.05	0.09	T.	0.00	T.	0.00	0.00	0.00	0.00	0.00	T.	T.	T.	T.	0.00	0.00	0.00	0.00	T.	0.34
Philadelphia, Pa	T.	0.06	0.08	0.04	0.08	0.05	0.03	0.23	0.32	0.18	0.08	0.01	0.05	T.	0.13	0.03	0.04	0.01	T.	0.02	0.01	0.69	T.	0.01	2.15
Pittsburg, Pa	0.15	0.01	0.00	0.00	0.00	0.00	0.00	T.	0.00	0.00	0.01	T.	0.00	0.00	T.	0.01	0.03	0.01	T.	T.	0.00	0.15	0.02	0.03	0.45
Portland, Me	0.02	0.01	0.02	0.03	0.06	0.05	0.07	0.20	0.67	0.57	0.07	0.79	0.39	0.09	0.28	0.08	0.00	T.	T.	T.	0.01	0.03	0.03	T.	3.27
Portland, Oreg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.
Rochester, N. Y	0.01	0.00	0.01	0.01	0.01	0.01	0.01	T.	0.01	0.00	T.	0.04	0.03	0.00	0.00	T.	0.01	T.	T.	0.26	0.09	0.15	0.01	0.01	0.68
St. Louis, Mo	0.00	0.00	0.00	0.00	0.00	0.04	0.57	0.34	0.04	0.02	0.03	T.	0.01	0.03	0.02	T.	0.01	0.10	0.01	T.	T.	0.13	T.	0.02	1.66
St. Paul, Minn	0.03	T.	T.	T.	0.16	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.00	T.	0.00	T.	0.01	0.02	0.01	T.	0.35
Salt Lake City, Utah	0.00	0.00	0.03	0.05	0.02	0.01	T.	T.	T.	0.00	0.00	0.00	0.00	0.03	0.23	T.	T.	0.37	0.03	0.02	T.	0.00	0.00	0.00	0.79
San Diego, Cal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
San Francisco, Cal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Savannah, Ga	0.43	0.06	0.03	0.03	0.06	0.02	0.01	T.	T.	0.04	T.	0.14	1.01	0.25	0.07	0.07	0.45	0.20	1.12	2.01	0.36	0.35	0.29	0.28	7.28
Seattle, Wash	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.00	0.00	T.	0.00	0.00	0.00	0.04
Vicksburg, Miss	0.00	0.00	0.00	0.28	0.57	0.02	0.02	0.01	0.02	0.00	0.00	0.05	T.	T.	0.45	0.27	0.18	0.17	0.15	0.01	T.	0.06	T.	0.03	2.29
Washington, D.C	0.02	0.10	0.18	0.11	0.07	0.03	T.	0.05	0.11	0.03	0.10	0.02	0.01	0.12	0.54	0.11	0.04	0.02	T.	T.	0.02	T.	0.17	0.03	1.88
Wilmington, N. C	0.00	0.06	0.02	0.27	0.67	0.37	0.38	0.13	0.23	0.20	0.17	0.08	0.10	0.15	0.02	0.01	0.03	0.36	0.72	0.09	0.05	0.04	0.08	T.	4.23

*Record incomplete.

TABLE V.—*Mean temperature for each hour of seventy-fifth meridian time, August*, 1894.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	72.3	71.4	70.5	69.9	69.5	68.9	68.3	68.8	71.1	73.9	76.7	78.9	80.9	81.1	82.1	82.2	82.3	82.0	81.2	79.7	77.6	75.6	74.0	73.0	75.1
Albany, N. Y	64.1	63.5	62.9	62.5	61.9	61.7	62.9	64.8	67.5	70.0	72.3	74.0	75.4	76.0	76.4	76.4	75.8	71.2	71.9	69.2	67.8	66.5	65.4	64.4	68.6
Alpena, Mich	58.2	57.4	56.7	56.2	55.4	55.2	57.2	59.8	63.3	65.2	66.8	67.8	68.5	68.3	69.0	68.8	68.3	67.1	65.7	63.9	62.4	61.1	59.8	58.9	62.5
Amarillo, Tex	68.1	67.4	66.4	65.8	64.5	63.9	63.5	63.3	64.4	67.3	70.1	72.5	74.6	76.3	77.2	77.4	77.2	77.2	76.5	75.7	73.8	71.6	70.2	68.9	70.6
Atlanta, Ga	72.2	71.7	71.3	70.8	70.3	69.9	70.1	71.7	73.7	76.2	78.4	80.2	80.6	81.8	82.5	82.1	81.6	80.1	78.1	76.1	74.9	74.2	73.3	72.8	75.6
Augusta, Ga	73.7	73.9	73.4	73.0	71.5	71.5	72.3	74.3	77.2	79.7	81.8	83.6	85.1	85.9	86.8	86.5	84.5	82.7	79.7	78.0	76.9	75.9	75.1	74.1	78.1
Baker City, Oreg	66.2	64.7	63.2	61.4	60.2	58.5	56.8	55.0	55.9	58.7	63.9	68.9	72.3	75.6	78.3	80.3	81.9	82.0	81.2	79.5	77.0	73.4	70.5	67.8	68.9
Baltimore, Md	69.1	68.5	67.8	67.1	66.7	66.4	67.4	69.9	71.9	74.0	76.1	77.5	78.5	79.2	79.4	79.2	78.9	77.6	76.5	74.6	73.4	71.9	70.5	69.5	73.0
Bismarck, N. Dak	65.5	64.2	62.8	61.4	60.0	59.3	58.1	59.1	62.9	67.4	72.6	76.7	79.6	81.6	83.4	84.2	83.4	83.2	81.9	80.5	76.5	73.1	70.3	67.9	71.5
Boston, Mass	64.8	64.2	63.8	63.1	62.6	62.5	63.3	65.6	67.7	69.7	71.2	72.1	72.7	72.5	72.4	72.1	71.5	70.7	69.3	68.2	67.3	66.3	65.5	65.0	67.7
Buffalo, N. Y	64.4	63.6	62.8	62.2	61.6	61.6	62.9	65.4	67.6	69.1	70.4	71.7	72.6	72.6	72.6	72.6	72.2	71.4	70.3	69.1	67.6	66.7	66.1	65.4	67.6
Charleston, S. C	76.5	76.2	75.8	75.4	74.7	74.4	75.3	77.3	79.5	81.9	83.9	84.5	85.0	84.1	83.7	83.7	83.0	81.7	80.2	79.1	78.7	78.2	77.5	77.2	79.5
Charlotte, N. C	70.5	70.1	69.5	68.9	68.5	68.1	68.7	71.2	73.2	75.5	77.7	79.7	80.8	81.5	82.4	81.8	80.1	78.2	76.8	75.2	73.9	72.9	72.1	71.2	74.5
Cheyenne, Wyo	60.7	59.5	57.7	56.7	55.3	54.9	54.3	54.7	60.6	67.2	71.9	74.4	75.8	77.4	78.4	78.3	76.9	76.9	75.5	73.6	70.0	66.9	64.5	62.6	66.9
Chicago, Ill	69.4	68.6	68.3	67.6	67.0	66.4	66.5	67.6	69.4	70.8	71.9	72.7	73.3	73.3	73.7	74.3	74.5	74.5	74.1	73.1	72.2	71.6	70.8	70.0	70.1
Cincinnati, Ohio	72.8	71.7	70.9	70.0	69.6	68.3	68.1	69.4	72.5	75.7	78.7	81.1	82.6	83.6	84.5	84.8	85.2	84.4	82.3	80.0	78.7	76.8	75.3	73.9	76.7
Cleveland, Ohio	65.9	65.3	64.5	63.8	63.0	62.4	62.7	65.6	68.3	71.6	72.9	73.6	73.9	73.8	73.7	73.6	73.8	74.0	73.2	71.9	70.4	69.0	67.4	66.2	69.2
Colorado Sp'ngs, Colo.	60.3	58.9	57.7	57.1	56.3	54.9	54.7	55.3	59.6	65.5	69.3	71.5	72.7	74.3	74.4	75.3	75.5	75.1	72.3	71.0	67.7	64.9	63.6	61.8	65.4
Columbus, Ohio	67.2	66.1	65.2	64.0	63.2	62.6	63.3	66.2	69.3	72.8	75.6	77.9	80.0	80.7	81.1	81.0	80.3	79.1	77.2	75.1	73.1	71.0	69.4	68.1	72.1
Denver, Colo	67.1	66.0	64.5	63.5	62.3	61.2	60.4	59.7	61.3	65.8	71.6	75.4	78.6	80.8	81.8	82.7	81.8	80.9	79.9	78.3	75.4	72.4	70.4	68.4	71.3
Des Moines, Iowa	71.3	70.2	68.5	67.4	66.4	65.3	64.7	66.3	69.4	73.4	77.1	80.1	83.4	85.0	86.6	87.5	87.5	86.9	85.4	82.3	79.5	76.9	74.7	72.9	76.2
Detroit, Mich	65.2	64.5	63.6	62.8	62.2	61.8	62.0	64.4	66.7	69.6	72.4	75.0	76.1	77.2	77.6	77.8	77.8	75.8	73.8	71.4	69.8	68.3	67.1	66.0	69.5
Dodge City, Kans	70.5	69.6	68.3	67.2	65.7	65.0	64.3	65.7	68.9	73.7	78.0	81.8	83.8	85.4	86.7	87.6	87.9	88.0	86.5	82.7	79.1	76.5	73.8	71.8	76.2
Duluth, Minn	62.4	61.8	61.0	60.3	59.7	58.9	59.2	60.4	61.5	63.1	64.7	66.2	67.3	68.5	69.0	69.3	68.5	68.7	68.1	67.0	65.9	65.1	64.2	63.4	64.3
Eastport, Me	53.8	53.5	53.2	53.0	53.0	53.9	55.9	58.4	60.5	61.6	62.5	63.5	63.8	64.2	63.6	62.8	62.0	60.6	58.5	57.4	56.5	55.9	55.0	54.4	58.2
El Paso, Tex	73.3	72.0	71.1	70.5	69.4	68.6	68.1	67.6	69.5	72.8	76.2	79.1	81.6	83.3	84.5	85.5	86.1	86.2	85.2	82.8	79.9	77.3	75.9	74.5	76.7
Fort Smith, Ark	75.0	73.9	72.8	71.7	70.9	70.3	70.1	72.9	75.4	78.5	81.5	83.7	85.5	86.6	88.1	88.5	88.7	87.1	85.6	83.1	81.2	79.1	77.5	76.0	79.3
Galveston, Tex	79.2	79.2	79.1	79.0	78.8	78.3	78.0	78.4	79.1	79.9	80.1	80.9	81.2	81.6	81.9	81.2	81.3	80.8	80.4	80.0	79.5	79.4	79.5	79.4	79.8
Grand Haven, Mich	63.4	62.3	61.4	60.5	60.0	59.5	59.4	61.6	64.7	67.0	68.7	70.2	70.9	71.7	71.7	71.8	72.2	71.9	71.3	68.9	67.6	66.3	65.3	64.3	66.4
Havre, Mont	64.6	63.2	61.1	59.1	58.1	56.7	55.2	55.3	58.8	63.7	69.6	74.5	78.6	81.0	82.7	84.4	85.4	85.6	85.0	82.7	78.6	73.3	69.7	67.3	70.6
Helena, Mont	67.7	66.3	65.0	62.9	61.5	60.2	59.3	58.6	61.1	63.5	66.1	69.2	72.7	75.9	77.9	78.9	80.2	80.1	79.5	78.4	76.0	72.8	71.0	69.1	69.7
Huron, S. Dak	65.8	64.1	62.6	61.0	59.7	58.8	58.7	61.3	66.1	71.6	76.1	79.9	82.7	84.5	85.7	86.7	87.0	86.2	83.9	81.1	76.4	73.4	71.1	68.3	73.0
Indianapolis, Ind	69.2	68.1	67.0	65.7	64.3	63.4	63.8	67.2	71.4	75.4	79.0	81.2	83.4	85.0	85.5	85.5	84.6	83.2	81.5	78.6	76.5	74.2	72.4	70.7	74.8
Jacksonville, Fla	70.3	75.6	75.3	75.1	74.9	74.5	75.1	77.9	80.6	83.3	85.4	87.1	87.7	87.2	86.7	85.1	83.6	82.1	80.2	78.9	78.1	78.0	77.5	76.9	80.1
Kansas City, Mo	75.0	74.0	72.7	71.7	71.2	70.1	69.5	70.0	72.7	75.9	79.5	82.0	83.7	85.1	86.2	87.0	87.4	86.9	86.0	83.3	81.1	79.4	77.6	76.2	78.5
Key West, Fla	81.2	81.0	80.7	80.5	80.4	80.4	81.4	83.9	84.4	85.5	86.4	86.4	86.7	87.2	86.8	86.3	85.2	84.3	83.3	82.6	82.1	82.0	81.7	81.4	83.4
Knoxville, Tenn	71.5	71.0	70.4	69.7	69.0	68.5	68.6	70.3	72.2	74.8	77.9	80.3	81.2	81.6	82.2	81.6	81.4	81.0	79.2	77.3	75.6	74.2	73.2	72.2	75.2
Lander, Wyo	63.8	61.5	59.7	57.9	55.6	53.6	52.2	52.6	58.1	65.7	71.1	74.5	77.5	79.2	80.5	82.0	82.0	82.2	80.6	77.5	71.6	67.6	66.6	65.6	68.3
Little Rock, Ark	73.5	72.8	72.5	71.7	71.2	70.9	70.7	72.1	74.3	77.2	79.8	81.3	82.7	83.0	83.7	84.0	83.7	81.9	80.9	79.2	77.3	76.0	75.1	74.3	77.1
Louisville, Ky	73.0	71.8	70.9	69.9	69.2	68.5	68.5	70.7	73.8	77.7	81.0	84.0	85.8	87.5	87.6	88.0	87.8	86.1	84.4	81.4	79.2	77.3	75.2	74.0	78.6
Lynchburg, Va	69.0	68.4	67.6	67.2	66.4	65.9	66.4	69.6	72.1	75.0	77.8	79.2	80.5	81.0	82.0	81.3	80.8	80.0	77.5	74.7	73.6	72.2	70.7	69.7	73.7
Marquette, Mich	58.2	57.9	57.6	57.4	57.0	57.2	57.8	59.5	61.2	62.3	63.5	64.5	65.5	65.6	65.1	65.4	64.7	64.8	63.3	62.0	60.4	59.4	59.1	58.8	61.2
Memphis, Tenn	74.2	73.5	72.5	72.2	71.6	71.1	71.2	73.4	75.3	77.7	79.9	82.0	83.0	84.2	84.9	84.9	84.7	83.4	81.8	79.6	78.3	77.2	76.1	74.9	77.8
Milwaukee, Wis	65.8	64.9	64.4	63.8	63.4	63.1	63.5	65.2	67.8	70.6	72.1	73.5	73.0	73.0	73.5	74.2	73.6	72.7	72.0	71.0	69.9	68.8	67.9	66.4	68.9
Montgomery, Ala	74.0	73.4	73.1	72.8	72.5	72.1	73.3	74.8	77.0	79.7	82.2	83.6	85.0	85.3	84.9	85.5	83.5	82.8	80.0	78.8	77.3	76.5	75.2	74.6	78.3
Moorhead, Minn	62.4	61.1	60.1	58.5	57.8	56.3	56.2	58.8	63.1	67.1	70.9	74.5	77.2	79.4	80.7	81.5	81.6	80.6	78.3	75.4	71.5	68.3	66.5	64.8	68.9
Nantucket, Mass	63.8	63.9	63.8	63.5	63.6	64.4	65.7	66.8	67.5	68.1	68.9	69.4	69.3	69.4	69.1	68.2	67.3	66.4	65.0	64.5	64.1	63.9	63.8	63.7	66.0
Nashville, Tenn	74.3	73.4	72.4	71.5	71.0	70.4	70.5	72.5	75.1	78.4	81.8	83.9	85.6	86.5	86.8	86.7	86.6	85.6	84.0	81.6	79.8	78.2	76.8	75.5	78.7
New Haven, Conn	64.8	64.2	63.2	62.4	61.8	62.0	63.6	66.7	68.9	71.0	72.5	73.3	74.5	75.2	75.6	75.2	74.0	72.6	70.6	69.2	68.2	67.3	66.2	65.3	68.7
New Orleans, La	76.0	75.6	75.2	75.0	74.8	74.6	74.9	76.6	78.7	80.7	81.9	83.2	83.2	83.5	83.9	83.6	83.5	82.8	81.6	80.7	78.8	77.9	77.0	76.5	79.2
New York, N. Y	68.5	67.8	67.3	66.7	66.1	66.0	66.5	67.5	69.2	71.6	73.6	75.3	76.8	78.3	78.6	78.6	77.6	76.0	74.4	72.8	71.9	71.2	70.0	69.4	71.7
Norfolk, Va	70.6	70.3	70.2	69.8	69.5	69.4	70.3	72.4	74.3	75.8	77.2	77.9	78.2	78.9	78.7	78.3	77.5	76.1	74.6	73.0	72.3	71.5	71.1	70.9	73.7
North Platte, Nebr	69.5	68.0	66.3	64.5	62.8	62.0	60.6	61.9	66.5	71.4	76.0	79.6	82.2	84.1	86.2	87.3	87.5	87.1	85.5	82.2	77.5	74.2	72.8	70.8	74.4
Omaha, Nebr	73.7	72.4	71.1	69.5	68.5	67.3	66.5	68.0	71.4	74.9	79.1	81.7	83.7	85.4	87.2	87.9	88.2	87.9	86.5	84.9	81.5	79.5	77.2	75.5	77.9
Philadelphia, Pa	68.1	67.5	66.9	66.4	65.9	65.7	66.6	68.3	70.2	72.1	74.2	75.9	77.0	78.3	78.7	78.9	78.1	76.9	74.9	73.1	71.5	70.4	69.5	68.7	71.8
Pikes Peak, Colo	34.4	34.3	34.2	33.8	33.9	33.7	33.6	34.1	34.9	36.3	37.1	37.7	38.2	38.7	38.9	38.7	38.6	38.5	38.0	37.0	35.9	35.6	35.2	34.7	36.1
Pittsburg, Pa	69.3	68.3	67.1	66.3	65.7	65.1	65.4	67.5	70.8	74.1	76.6	78.8	80.6	81.3	81.8	82.2	81.5	80.3	78.7	77.0	75.5	73.5	72.0	70.3	73.7
Portland, Oreg	69.0	68.0	65.9	64.4	62.9	61.9	60.6	59.3	58.8	59.6	61.4	63.5	66.1	69.1	72.3	74.7	77.1	78.8	79.6	79.4	78.5	76.4	73.9	71.5	68.9
Rapid City, S. Dak	67.5	65.8	65.1	63.8	62.9	61.9	61.0	64.0	68.0	73.1	76.6	79.3	81.3	83.3	84.2	84.8	84.9	85.1	84.1	81.7	77.9	74.2	71.3	68.5	73.8
Red Bluff, Cal	82.1	79.9	77.5	75.2	73.4	71.5	70.1	68.5	67.7	70.9	75.7	80.1	84.2	87.7	90.8	93.4	94.8	95.9	96.4	95.9	94.3	90.8	87.4	84.1	82.8
Rochester, N. Y	61.7	60.5	60.2	59.5	59.1	59.0	61.3	64.2	67.5	70.3	72.0	73.5	74.5	74.6	74.6	74.3	73.7	72.7	70.2	68.2	66.6	65.1	64.0	62.7	67.1
Roseburg, Oreg	67.7	64.7	62.6	60.5	59.0	57.5	56.5	55.3	55.3	57.4	60.9	65.0	68.2	71.8	75.3	78.6	81.2	83.0	83.3	82.5	80.7	77.0	73.7	70.1	68.7
St. Louis, Mo	75.2	74.4	73.4	72.4	71.8	70.8	70.5	71.4	73.4	76.0	78.9	81.8	83.5	84.9	86.0	86.6	86.6	85.1	83.9	81.7	80.4	78.5	77.3	76.2	78.4
St. Paul, Minn	67.6	66.2	65.1	64.1	63.1	62.1	61.4	62.2	64.9	69.1	73.1	76.3	78.5	79.9	81.0	81.8	81.9	81.7	80.6	77.9	75.5	73.2	71.1	69.3	72.0
Salt Lake City, Utah	73.2	71.7	70.4	70.2	68.7	67.9	67.0	66.4	67.4	70.5	75.2	78.3	81.3	82.9	84.4	85.2	85.5	84.6	84.4	83.2	80.6	77.7	75.8	74.2	76.1
San Diego, Cal	64.1	64.2	64.1	63.8	63.5	63.5	63.3	63.5	63.7	64.8	66.6	67.7	68.7	69.1	69.7	69.6	69.8	69.4	68.5	68.0	66.2	65.1	64.5	64.5	66.1
San Francisco, Cal	56.0	55.4	55.1	55.1	54.9	54.8	54.8	54.7	54.6	55.0	55.9	57.3	59.1	61.1	62.1	62.5	62.0	61.5	60.9	59.8	58.7	57.5	56.5	56.4	57.6
Santa Fe, N. Mex	60.8	59.7	58.8	58.2	57.2	56.7	55.8	56.6	59.1	61.9	64.7	67.2	69.1	70.1	70.8	70.6	70.1	69.8	68.6	67.5	65.2	63.6	62.3	61.2	63.6
Sault Ste. Marie, Mich.	54.5	53.9	52.9	52.6	52.3	52.3	53.8	56.0	58.4	61.1	63.4	64.9	65.8	66.6	66.4	66.5	65.5	63.9	61.9	60.2	58.5	57.4	56.2	54.9	59.2
Savannah, Ga	75.6	75.5	75.3	75.1	74.7	74.5	75.3	77.9	80.6	82.6	84.8	86.3	87.0	87.7	86.6	85.9	83.6	81.5	79.6	78.4	77.8	77.2	76.7	76.2	79.9
Seattle, Wash	64.1	62.6	61.7	60.5	59.8	58.7	58.0	57.5	57.2	57.9	59.0	60.6	62.2	64.5	67.3	69.5	72.0	73.2	73.4	73.5	72.5	70.3	67.7	65.9	64.6
Shreveport, La	74.7	74.1	73.4	72.9	72.6	72.0	71.8	73.3	75.4	77.9	80.5	82.3	83.2	84.4	85.5	85.1	85.0	84.4	82.5	80.5	78.9	77.4	76.3	75.4	78.3
Spokane, Wash	69.0	67.4	64.5	62.6	60.6	59.5	58.1	57.0	58.0	61.2	66.8	70.9	75.7	79.1	81.4	83.1	84.3	84.8	85.0	84.4	82.6	80.0	75.5	72.3	71.8
Titusville, Fla *	74.2	73.6	73.2	72.8	72.6	72.4	75.2	79.6	83.2	85.4	87.1	87.6	88.2	87.8	85.6	83.0	81.9	80.4	79.0	78.4	77.0	75.7	75.1	74.8	79.3
Toledo, Ohio	66.6	65.6	64.4	63.4	62.7	61.7	61.9	64.9	67.4	70.7	74.1	75.5	76.9	78.1	78.3	78.5	77.7	76.8	74.6	73.0	71.6	70.2	69.0	67.5	70.5
Tucson, Ariz	77.6	76.8	76.0	75.6	74.8	73.8	72.9	72.4	73.2	76.7	81.3	84.4	86.9	88.4	90.4	91.5	91.1	90.5	89.1	87.5	84.5	81.5	80.0	78.4	81.5
Vicksburg, Miss	74.1	73.6	73.4	72.6	72.4	72.2	72.2	73.3	75.4	77.5	79.8	81.7	83.6	84.4	84.6	83.4	83.0	82.3	80.7	78.6	77.5	76.4	75.6	74.9	77.6
Washington, D.C	68.6	68.1	67.5	67.0	66.4	65.9	67.3	69.9	72.7	75.3	77.6	79.6	80.5	81.1	80.9	80.9	80.1	78.5	76.3	73.8	72.3	70.9	70.0	69.1	73.4
Wilmington, N.C	73.8	73.4	72.8	72.4	71.7	71.5	72.7	75.0	77.4	78.9	81.1	81.6	82.8	83.2	82.8	82.5	81.3	80.0	78.4	77.0	76.2	75.5	74.8	74.2	77.1
Winnemucca, Nev	72.0	70.8	68.6	66.5	64.4	62.5	60.9	57.7	58.2	60.3	67.3	73.0	77.4	81.0	83.5	84.6	85.7	86.7	87.0	86.3	85.1	81.2	78.5	75.9	74.0
Yuma, Ariz	86.1	84.7	83.6	82.2	81.3	80.5	79.8	79.0	81.0	84.7	89.1	93.0	95.7	97.8	99.5	100.8	100.9	100.2	99.4	98.1	94.9	91.8	89.0	87.2	90.0

* Record for 20 days.

TABLE VI.—*Mean pressure for each hour of seventy-fifth meridian time, August, 1894.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	28.247	.248	.249	.250	.252	.258	.269	.278	.291	.298	.302	.296	.279	.264	.241	.223	.209	.202	.201	.206	.219	.232	.239	.245	.250
Albany, N. Y	29.927	.926	.924	.928	.935	.944	.951	.954	.951	.947	.938	.927	.912	.897	.888	.883	.880	.882	.895	.907	.916	.921	.925	.927	.920
Alpena, Mich	29.380	.377	.377	.377	.379	.384	.390	.391	.392	.387	.382	.375	.370	.365	.359	.356	.354	.353	.354	.361	.369	.374	.377	.380	.373
Atlanta, Ga	28.897	.892	.889	.889	.894	.904	.917	.929	.934	.938	.938	.931	.919	.899	.881	.871	.866	.865	.872	.881	.891	.902	.902	.902	.900
Augusta, Ga	29.844	.839	.834	.833	.835	.847	.858	.869	.876	.880	.879	.871	.852	.835	.816	.805	.801	.805	.815	.826	.841	.847	.851	.851	.842
Baltimore, Md	29.826	.823	.824	.826	.832	.842	.850	.854	.858	.860	.855	.845	.833	.818	.807	.802	.800	.800	.809	.819	.827	.830	.832	.831	.829
Bismarck, N. Dak	28.261	.269	.272	.274	.276	.281	.288	.297	.300	.298	.293	.285	.267	.252	.237	.224	.214	.206	.197	.198	.208	.224	.233	.238	.254
Boston, Mass	29.872	.869	.870	.873	.881	.888	.892	.893	.892	.891	.881	.872	.864	.857	.851	.848	.847	.851	.860	.868	.876	.876	.877	.876	.872
Buffalo, N. Y	29.277	.275	.277	.281	.286	.295	.304	.311	.313	.315	.312	.307	.301	.292	.282	.275	.272	.266	.268	.273	.281	.283	.282	.282	.288
Chicago, Ill	29.163	.162	.162	.164	.168	.177	.188	.192	.196	.198	.199	.196	.188	.180	.169	.158	.152	.147	.147	.153	.162	.167	.167	.168	.172
Cincinnati, Ohio	29.371	.367	.366	.367	.373	.385	.397	.403	.404	.405	.400	.394	.377	.361	.344	.331	.327	.327	.335	.342	.360	.365	.372	.375	.369
Cleveland, Ohio	29.224	.222	.224	.230	.236	.252	.267	.276	.280	.281	.280	.274	.266	.255	.245	.235	.231	.227	.228	.230	.231	.229	.228	.228	.245
Colorado Sp'gs, Colo	24.212	.210	.205	.202	.199	.197	.202	.210	.215	.216	.218	.216	.207	.195	.186	.174	.157	.150	.153	.159	.170	.185	.195	.203	.193
Columbus, Ohio	29.137	.132	.131	.135	.141	.151	.163	.168	.169	.172	.168	.160	.147	.132	.119	.109	.105	.101	.108	.117	.128	.134	.138	.141	.136
Denver, Colo	24.910	.910	.905	.901	.900	.901	.908	.916	.924	.929	.931	.927	.920	.909	.898	.884	.872	.866	.865	.863	.871	.883	.893	.899	.899
Des Moines, Iowa	29.111	.114	.119	.118	.122	.128	.143	.152	.158	.159	.158	.155	.145	.131	.116	.101	.089	.079	.074	.076	.083	.095	.102	.107	.118
Detroit, Mich	29.256	.253	.249	.250	.253	.259	.270	.275	.279	.279	.276	.271	.262	.252	.241	.236	.231	.230	.234	.242	.254	.258	.259	.260	.255
Dodge City, Kans *	27.477	.474	.469	.470	.471	.473	.482	.493	.499	.504	.505	.501	.489	.477	.466	.449	.433	.422	.418	.423	.433	.451	.466	.475	.467
Duluth, Minn	29.297	.296	.300	.305	.309	.315	.324	.329	.331	.327	.320	.313	.303	.295	.286	.280	.279	.277	.275	.277	.287	.293	.294	.295	.300
Eastport, Me	29.874	.873	.874	.879	.885	.892	.892	.892	.892	.888	.883	.877	.868	.862	.857	.853	.853	.855	.865	.873	.875	.877	.877	.876	.875
El Paso, Tex	26.255	.259	.258	.255	.252	.254	.258	.269	.283	.292	.295	.294	.282	.265	.246	.225	.204	.189	.181	.181	.195	.213	.233	.246	.245
Galveston, Tex	30.013	.010	.007	.004	.005	.014	.023	.031	.040	.051	.058	.056	.046	.031	.021	.009	.997	.985	.985	.989	.995	.006	.014	.015	.017
Grand Haven, Mich	29.342	.345	.347	.349	.355	.362	.373	.380	.385	.388	.390	.386	.378	.368	.357	.345	.337	.330	.328	.329	.331	.338	.342	.345	.356
Havre, Mont	27.405	.407	.411	.411	.410	.412	.419	.426	.435	.435	.434	.431	.420	.407	.394	.383	.369	.358	.354	.347	.352	.361	.375	.382	.398
Helena, Mont	25.942	.944	.946	.948	.951	.953	.956	.959	.967	.971	.970	.965	.958	.940	.926	.915	.890	.886	.889	.887	.893	.904	.922	.926	.934
Huron, S. Dak	28.625	.627	.626	.628	.631	.640	.651	.664	.667	.671	.670	.663	.647	.636	.621	.605	.589	.582	.576	.580	.594	.604	.609	.611	.626
Indianapolis, Ind	29.222	.220	.223	.224	.228	.235	.247	.256	.258	.262	.262	.253	.239	.229	.213	.199	.194	.191	.192	.198	.207	.215	.219	.223	.225
Jacksonville, Fla	30.006	.002	.995	.993	.997	.007	.018	.025	.029	.028	.025	.019	.993	.973	.953	.949	.949	.957	.975	.989	.005	.009	.011	.008	.996
Kansas City, Mo	29.045	.045	.044	.045	.048	.054	.064	.073	.080	.086	.090	.089	.075	.060	.044	.027	.014	.006	.005	.007	.015	.030	.038	.041	.047
Key West, Fla	30.065	.055	.046	.042	.043	.050	.063	.072	.081	.086	.088	.082	.073	.058	.043	.028	.027	.030	.043	.055	.067	.072	.074	.071	.059
Knoxville, Tenn	29.022	.018	.018	.019	.025	.035	.047	.056	.059	.061	.059	.049	.039	.021	.007	.995	.990	.986	.991	.999	.002	.022	.025	.025	.024
Little Rock, Ark	29.708	.705	.703	.701	.703	.714	.725	.738	.745	.749	.754	.750	.734	.715	.697	.684	.674	.677	.677	.684	.700	.711	.711	.712	.721
Louisville, Ky	29.468	.465	.465	.467	.472	.480	.495	.506	.509	.511	.508	.497	.484	.467	.448	.434	.424	.420	.422	.430	.447	.458	.466	.471	.467
Lynchburg, Va	29.332	.330	.327	.328	.334	.344	.354	.359	.362	.362	.356	.346	.331	.314	.302	.296	.292	.295	.305	.316	.329	.332	.336	.338	.330
Marquette, Mich	29.227	.226	.226	.228	.229	.236	.245	.248	.249	.255	.258	.257	.249	.244	.235	.232	.227	.227	.223	.224	.229	.230	.231	.230	.236
Memphis, Tenn	29.690	.688	.686	.686	.688	.696	.708	.719	.729	.735	.737	.734	.718	.703	.684	.671	.663	.659	.661	.668	.681	.689	.695	.696	.695
Milwaukee, Wis	29.310	.310	.314	.315	.322	.332	.341	.346	.350	.352	.351	.346	.337	.329	.315	.304	.296	.292	.292	.294	.302	.304	.304	.309	.319
Moorhead, Minn	29.006	.010	.011	.013	.016	.019	.028	.038	.041	.044	.044	.035	.019	.007	.999	.980	.975	.971	.966	.967	.980	.989	.994	.993	.006
Nantucket, Mass	30.015	.009	.004	.000	.009	.016	.026	.024	.029	.029	.024	.021	.015	.009	.005	.002	.002	.005	.010	.016	.024	.023	.021	.018	.015
Nashville, Tenn	29.452	.448	.446	.447	.450	.458	.473	.483	.489	.490	.486	.476	.459	.445	.425	.414	.410	.406	.413	.422	.437	.449	.452	.452	.449
New Haven, Conn	29.896	.892	.890	.894	.904	.912	.917	.914	.914	.911	.904	.894	.884	.875	.866	.863	.865	.871	.878	.887	.895	.896	.900	.900	.893
New Orleans, La	29.980	.973	.968	.970	.975	.982	.994	.005	.013	.016	.016	.008	.000	.987	.970	.956	.951	.947	.948	.953	.968	.978	.982	.979	.980
New York, N. Y	29.829	.827	.825	.827	.833	.840	.849	.851	.852	.852	.842	.835	.825	.815	.806	.801	.799	.800	.810	.821	.828	.832	.835	.837	.828
Norfolk, Va	29.963	.955	.951	.951	.954	.963	.971	.976	.981	.986	.985	.980	.971	.961	.951	.944	.945	.946	.953	.961	.969	.972	.970	.969	.964
Omaha, Neb	28.867	.867	.869	.870	.875	.882	.893	.900	.905	.905	.904	.898	.883	.870	.854	.838	.820	.820	.817	.821	.831	.842	.855	.863	.865
Parkersburg, W. Va.	29.365	.363	.367	.369	.375	.390	.397	.406	.411	.410	.401	.396	.382	.366	.348	.338	.335	.331	.336	.343	.354	.358	.364	.367	.370
Philadelphia, Pa	29.905	.903	.899	.901	.907	.912	.919	.926	.928	.932	.931	.920	.908	.896	.886	.879	.876	.877	.883	.898	.905	.909	.911	.912	.905
Pikes Peak, Colo	18.119	.115	.110	.105	.101	.098	.097	.100	.103	.111	.119	.125	.126	.126	.126	.121	.115	.114	.112	.107	.104	.111	.115	.114	.112
Pittsburg, Pa	29.168	.168	.169	.170	.175	.183	.194	.203	.204	.202	.196	.184	.169	.154	.139	.130	.127	.129	.135	.144	.155	.164	.167	.171	.167
Portland, Oreg	29.848	.853	.862	.864	.866	.871	.871	.876	.885	.892	.895	.891	.886	.876	.866	.850	.835	.821	.807	.800	.798	.805	.820	.831	.853
Rochester, N. Y	29.471	.470	.472	.474	.480	.489	.500	.506	.509	.508	.506	.502	.492	.483	.470	.463	.458	.455	.458	.466	.471	.472	.472	.472	.480
Roseburg, Oreg	29.417	.424	.428	.430	.432	.435	.439	.441	.450	.454	.454	.454	.448	.438	.426	.409	.393	.373	.363	.356	.358	.366	.381	.400	.415
St. Louis, Mo	29.423	.419	.421	.424	.427	.436	.447	.457	.465	.467	.469	.466	.455	.441	.421	.406	.397	.392	.390	.395	.409	.419	.424	.424	.429
St. Paul, Minn	29.128	.130	.131	.134	.136	.141	.150	.156	.160	.161	.160	.155	.144	.132	.119	.108	.099	.095	.092	.095	.105	.116	.119	.123	.129
Salt Lake City, Utah	25.688	.693	.696	.695	.697	.702	.708	.718	.730	.736	.738	.737	.728	.716	.704	.687	.668	.656	.650	.646	.651	.665	.675	.679	.694
San Diego, Cal	29.885	.883	.876	.869	.864	.860	.860	.866	.878	.886	.894	.896	.897	.893	.883	.875	.862	.854	.851	.848	.849	.857	.866	.875	.872
San Francisco, Cal	29.820	.828	.825	.822	.820	.819	.818	.822	.831	.843	.849	.855	.859	.854	.846	.837	.824	.810	.800	.795	.792	.798	.810	.822	.825
Santa Fe, N. Mex	23.449	.449	.447	.447	.446	.446	.449	.452	.456	.462	.464	.464	.458	.449	.439	.429	.417	.410	.405	.403	.408	.422	.437	.443	.440
Sault Ste. Marie, Mich	29.323	.322	.321	.320	.322	.326	.331	.331	.337	.336	.333	.331	.325	.322	.314	.309	.305	.307	.304	.306	.318	.323	.326	.325	.321
Savannah, Ga	29.939	.935	.929	.928	.934	.947	.958	.965	.972	.976	.972	.962	.950	.931	.911	.903	.903	.907	.921	.933	.945	.948	.947	.944	.940
Seattle, Wash	29.881	.885	.888	.891	.891	.893	.895	.901	.908	.911	.914	.914	.911	.904	.894	.887	.881	.866	.856	.849	.845	.848	.858	.866	.885
Spokane, Wash	27.980	.985	.989	.994	.999	.000	.008	.016	.030	.040	.043	.035	.016	.016	.011	.005	.988	.972	.958	.919	.947	.950	.957	.959	.994
Toledo, Ohio	29.322	.320	.320	.322	.329	.337	.350	.355	.357	.358	.357	.347	.333	.323	.310	.302	.295	.292	.293	.301	.316	.320	.323	.327	.325
Vicksburg, Miss	29.747	.743	.741	.741	.742	.749	.763	.774	.779	.784	.786	.781	.769	.754	.743	.730	.724	.721	.725	.731	.738	.746	.748	.747	.750
Washington, D. C	29.922	.916	.914	.913	.917	.927	.933	.939	.945	.949	.947	.941	.929	.917	.904	.896	.895	.895	.900	.911	.920	.924	.925	.927	.921
Wilmington, N. C	29.944	.938	.937	.938	.937	.958	.969	.975	.983	.984	.979	.972	.958	.945	.934	.928	.926	.930	.937	.945	.954	.958	.956	.954	.952
Yuma, Ariz	29.679	.688	.689	.688	.687	.691	.696	.716	.735	.742	.716	.747	.738	.721	.700	.678	.656	.637	.626	.623	.628	.641	.663	.672	.687

* For 28 days only.

TABLE VII.—*Average wind movement for each hour of seventy-fifth meridian time, August*, 1894.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	4.8	5.0	4.4	4.4	4.1	3.9	3.5	4.5	5.3	6.5	6.8	6.5	7.0	7.6	7.2	7.6	7.9	7.6	7.4	6.8	5.3	4.8	5.3	5.0	5.8
Albany, N. Y	4.2	4.1	4.5	4.4	4.2	4.2	5.2	6.3	7.8	8.4	8.8	8.5	9.2	8.8	8.2	7.4	7.6	7.0	5.2	4.6	4.5	4.3	4.1	4.0	6.1
Alpena, Mich	5.6	5.4	5.2	5.4	5.2	5.1	5.6	6.3	7.3	8.4	9.1	9.5	10.1	11.3	11.3	10.9	10.1	9.4	7.6	6.1	5.5	5.5	5.6	5.7	7.4
Amarillo, Tex	11.0	11.0	10.1	10.0	10.3	10.1	9.6	9.3	9.8	10.9	12.2	11.9	11.4	10.9	11.5	13.0	12.9	13.2	14.0	13.6	11.1	11.5	11.3	11.5	11.3
Atlanta, Ga	6.0	6.6	7.0	7.2	7.0	6.6	5.6	6.4	7.0	7.6	8.0	8.1	8.3	8.3	8.4	8.4	8.4	7.8	6.6	7.0	6.6	6.7	6.7	6.6	7.2
Atlantic City, N. J	6.7	7.3	7.0	7.0	7.4	7.5	7.6	9.0	10.0	10.4	10.5	10.0	10.0	10.2	10.2	10.1	9.5	8.3	7.2	7.3	7.1	7.1	7.1	6.6	8.4
Augusta, Ga	1.8	1.4	1.7	1.4	1.4	1.7	2.1	2.7	3.1	3.8	4.5	4.5	5.2	5.5	6.0	6.5	5.9	5.4	4.8	3.6	2.8	2.5	3.0	2.5	3.5
Baker City, Oreg	3.3	3.5	3.9	4.7	5.4	6.0	6.4	7.1	6.8	6.4	4.7	2.3	3.0	4.1	4.7	4.8	5.3	5.9	6.2	6.9	6.2	4.8	4.9	4.0	5.1
Baltimore, Md	3.4	3.6	3.2	3.6	4.1	4.0	4.1	4.6	5.2	6.2	6.6	7.7	7.6	7.7	8.0	8.5	7.9	6.3	5.2	3.8	3.6	3.4	3.6	3.6	5.2
Bismarck, N. Dak	6.7	6.4	6.1	5.8	5.7	6.1	5.9	5.3	5.9	6.8	8.2	9.7	10.6	11.0	11.5	11.1	11.6	11.1	10.0	8.5	8.4	7.5	7.7	7.8	8.1
Block Island, R. I	11.4	11.3	11.5	10.6	10.7	11.5	11.7	12.4	13.3	12.8	12.4	12.6	13.3	13.4	13.5	14.3	13.4	12.2	12.3	11.6	11.6	11.3	11.2	11.2	12.1
Boston, Mass	8.3	8.0	7.5	7.9	7.8	7.6	8.1	8.5	8.7	9.2	10.2	10.5	11.2	11.9	11.7	12.1	11.5	10.7	9.9	9.2	9.3	9.3	9.2	8.5	9.5
Buffalo, N. Y	6.5	6.3	6.1	6.5	6.2	6.6	6.6	6.9	7.7	8.2	9.2	10.0	11.4	11.5	11.4	10.9	9.9	9.3	8.2	7.4	6.6	6.4	6.2	6.7	8.0
Cairo, Ill	4.1	4.1	4.1	3.7	3.8	4.1	4.4	4.7	5.4	5.5	6.2	6.8	6.2	6.7	7.5	8.2	7.7	7.2	6.6	5.8	5.3	4.6	4.5	4.5	5.5
Cape Henry, Va	8.6	8.2	7.7	7.9	8.1	8.0	8.0	9.0	9.5	9.0	9.7	9.8	11.5	10.7	10.7	10.9	11.0	9.5	9.0	8.6	9.0	8.9	9.5	8.7	9.2
Charleston, S. C	5.3	4.4	4.4	4.4	4.5	4.5	4.9	5.4	5.9	6.4	7.0	8.4	9.5	9.9	10.5	10.0	9.9	9.4	7.9	6.7	7.2	7.0	6.7	5.8	6.9
Charlotte, N. C	3.7	3.6	4.0	3.9	4.0	3.9	4.1	3.9	4.3	4.6	4.7	4.8	4.9	5.2	5.7	6.1	6.3	5.9	4.4	3.5	3.5	3.5	3.8	3.7	4.4
Chattanooga, Tenn	5.0	4.5	4.4	4.9	4.7	4.2	4.4	4.4	5.4	6.4	6.1	6.3	6.7	7.7	8.7	8.9	8.7	8.1	6.6	5.0	4.1	3.7	4.3	4.5	5.7
Cheyenne, Wyo	7.3	6.7	6.2	6.3	6.3	6.1	6.3	6.0	5.9	6.7	7.7	9.4	10.9	11.9	11.5	10.5	11.6	10.8	10.5	10.2	9.3	8.9	8.2	7.2	8.4
Chicago, Ill	13.6	13.8	14.4	14.3	14.3	14.3	14.3	12.5	12.0	12.2	13.4	13.5	14.9	14.9	15.3	15.8	15.8	15.4	14.9	14.5	14.6	14.7	14.3	13.9	14.2
Cincinnati, Ohio	3.9	3.5	3.4	3.0	3.3	3.5	3.5	4.2	4.9	5.6	6.1	6.3	6.9	7.4	7.5	7.9	7.6	8.2	7.5	6.5	5.7	5.5	4.9	4.0	5.4
Cleveland, Ohio	9.0	9.9	9.4	8.7	8.3	8.4	8.2	8.6	8.8	8.9	10.1	10.7	11.4	11.8	12.1	11.7	10.9	8.9	7.4	6.2	6.2	7.0	8.2	8.2	9.1
Colorado Spr'gs, Colo.	6.5	6.7	6.9	6.7	6.0	5.6	6.3	6.3	5.9	4.3	4.3	6.4	7.9	8.6	9.1	8.6	8.0	8.5	10.5	9.5	7.0	6.1	6.1	6.6	7.0
Columbia, Mo	3.4	3.1	3.0	3.2	2.9	2.9	2.5	2.8	3.9	4.2	5.0	5.8	6.0	6.1	6.7	6.5	6.4	5.9	5.6	4.3	3.8	3.9	3.7	3.6	4.4
Columbus, Ohio	3.9	4.0	3.6	3.8	3.6	3.9	4.1	4.4	5.4	5.7	6.0	6.9	7.8	8.5	8.9	8.9	8.4	8.4	7.0	7.0	6.5	6.1	5.3	4.5	6.0
Concordia, Kans	4.8	4.8	4.4	4.0	3.7	3.8	3.4	2.8	3.4	5.1	5.6	6.5	6.9	7.1	7.3	7.0	6.5	6.4	5.4	4.7	3.6	4.0	4.6	4.6	5.0
Corpus Christi, Tex	10.1	8.8	8.0	7.2	6.4	5.7	5.5	4.9	5.9	8.0	8.6	9.3	10.7	12.7	14.1	15.3	15.5	16.1	15.8	15.3	14.5	14.3	13.2	11.6	10.7
Davenport, Iowa	6.2	6.3	5.8	5.8	5.5	5.3	5.3	5.1	5.9	5.6	6.1	7.2	7.8	8.2	8.0	8.6	7.8	7.6	6.5	5.9	5.4	5.6	6.0	5.8	6.4
Denver, Colo	6.8	6.4	6.6	5.4	4.8	4.9	4.8	4.6	4.0	3.7	3.6	4.2	5.5	6.1	6.8	7.5	8.5	9.3	8.6	8.7	8.2	8.2	7.3	6.8	6.3
Des Moines, Iowa	4.7	4.4	4.4	4.2	3.9	3.8	3.4	3.9	4.7	5.6	6.2	6.8	7.1	7.5	7.5	7.7	8.1	8.4	7.6	6.7	5.4	4.4	4.4	4.8	5.7
Detroit, Mich	6.5	6.5	6.5	6.5	6.4	6.4	6.5	6.8	6.9	7.6	7.6	7.8	8.9	9.6	10.3	10.2	9.3	8.8	8.3	7.3	6.8	7.0	6.8	6.7	7.6
Dodge City, Kans	8.3	8.2	7.5	6.9	6.4	5.8	4.8	5.4	6.9	9.6	10.9	11.2	12.3	12.8	13.3	13.1	12.3	11.8	12.3	11.9	10.5	9.0	8.3	8.1	9.5
Duluth, Minn	5.6	6.5	5.6	5.5	4.5	4.7	4.8	4.8	5.4	5.3	6.4	6.5	6.5	6.7	7.2	7.0	6.8	6.2	6.0	5.1	4.6	5.2	5.1	5.1	5.7
Eastport, Me	5.5	5.6	5.1	5.3	4.9	5.5	5.1	4.8	5.1	5.6	6.9	7.6	7.8	8.5	8.0	8.3	7.4	6.8	6.0	5.8	6.2	6.2	6.4	6.6	6.3
El Paso, Tex	8.4	9.5	8.7	8.4	8.6	8.4	7.6	7.8	7.4	7.1	6.9	7.2	6.9	7.4	8.1	8.8	9.1	10.1	9.5	10.4	10.3	8.8	8.3	8.5	8.4
Erie, Pa	8.0	8.2	7.9	8.3	8.4	8.5	8.6	7.8	8.1	8.4	9.4	9.8	9.4	9.5	8.9	8.3	7.3	6.3	6.1	6.3	6.9	7.1	7.4	8.0	8.0
Eureka, Cal	4.5	4.3	4.1	3.9	4.0	3.3	3.2	3.4	3.5	3.6	3.8	4.2	4.2	5.4	6.6	7.3	7.7	7.7	7.6	7.0	6.7	5.5	5.6	5.0	5.1
Fort Canby, Wash	8.3	8.2	8.5	7.9	7.9	7.6	7.0	7.7	8.0	7.9	7.6	8.1	9.2	10.1	10.5	11.1	10.3	9.7	9.6	10.5	11.3	11.0	9.9	9.0	9.0
Fort Smith, Ark	3.1	3.3	3.4	3.2	3.4	3.3	2.9	3.4	4.7	4.9	5.0	4.6	5.5	6.7	6.9	6.9	6.9	6.9	6.1	5.5	5.3	4.7	4.4	3.9	4.8
Fresno, Cal	10.3	9.9	10.0	9.4	8.4	8.1	7.0	6.3	5.2	4.5	3.8	3.5	4.0	4.4	4.3	4.8	5.5	5.7	6.3	7.0	7.9	8.8	9.4	9.8	6.8
Galveston, Tex	7.8	7.7	7.3	6.8	6.3	6.1	6.2	6.3	6.0	6.2	7.2	7.9	8.2	8.7	9.0	9.1	8.6	8.6	8.3	7.9	7.0	6.6	6.7	6.9	7.4
Grand Haven, Mich	5.8	5.6	5.6	5.5	6.0	5.5	6.1	6.6	7.2	8.2	8.9	8.9	9.7	10.3	10.9	11.0	10.8	9.0	7.3	6.4	5.9	6.2	5.9	5.9	7.5
Green Bay, Wis	6.0	6.4	6.2	6.0	6.0	6.2	6.1	6.4	7.3	7.6	8.1	8.4	8.4	9.0	8.8	8.3	8.3	8.3	7.1	7.1	7.0	6.6	6.4	6.6	7.2
Hannibal, Mo	5.6	5.5	5.1	4.7	4.2	5.2	4.7	4.4	5.5	5.2	6.5	7.3	7.6	8.1	7.9	8.4	8.0	7.3	7.4	6.3	5.9	5.3	5.4	5.3	6.1
Harrisburg, Pa	4.2	3.6	3.5	3.5	3.5	3.6	3.5	4.0	5.0	5.4	5.6	6.6	6.4	6.3	6.3	5.9	5.7	5.3	5.0	3.8	3.7	3.7	3.7	3.6	4.6
Hatteras, N. C	7.1	7.6	7.7	8.5	8.6	8.8	9.2	9.3	8.9	8.6	9.4	10.0	10.1	10.7	10.6	10.5	10.3	9.7	9.1	8.8	8.8	8.7	7.9	7.3	9.0
Havre, Mont	4.6	4.8	4.9	4.6	4.0	4.2	4.4	4.7	5.3	6.0	6.4	6.9	7.6	8.3	8.6	8.2	8.4	8.1	7.5	8.1	8.3	5.9	5.3	4.9	6.2
Helena, Mont	6.8	6.6	7.1	6.0	6.8	7.2	7.0	6.6	4.8	3.4	3.9	4.7	5.3	6.0	6.6	7.9	8.5	8.7	8.8	8.5	8.9	7.3	8.0	8.3	6.8
Huron, S. Dak	10.4	9.2	9.3	9.2	8.9	9.2	9.0	8.6	10.0	12.6	13.7	14.7	14.8	14.7	15.1	15.0	14.9	14.8	14.8	12.8	11.8	11.0	11.2	11.2	12.0
Idaho Falls, Idaho	7.1	6.9	7.4	6.3	6.2	5.9	5.7	5.9	5.7	5.3	5.8	5.6	6.3	7.1	7.7	8.0	9.1	10.1	11.8	12.6	12.3	9.3	8.0	8.0	7.7
Indianapolis, Ind	3.5	2.9	2.9	2.9	2.9	3.0	3.3	3.7	4.1	4.6	5.3	5.4	6.3	6.1	6.6	7.0	7.0	6.8	6.1	4.7	4.0	3.8	3.3	3.3	4.6
Jacksonville, Fla	5.7	5.9	5.2	5.2	5.6	5.3	5.0	4.7	5.5	5.6	6.0	6.5	7.3	8.2	9.0	9.1	9.4	8.9	7.8	7.5	6.5	5.7	5.3	5.5	6.5
Jupiter, Fla	3.8	3.8	3.5	3.6	3.4	3.4	3.0	3.6	5.0	5.9	7.6	9.0	9.1	9.6	9.9	9.5	8.5	8.3	6.2	5.1	4.5	4.8	3.9	4.1	5.8
Kansas City, Mo	5.7	5.1	5.5	5.7	5.2	4.7	4.5	4.6	5.5	5.8	6.3	6.7	7.1	7.3	7.7	7.6	7.6	7.6	7.0	5.9	5.8	5.9	5.3	5.2	6.1
Keokuk, Iowa	4.6	4.3	4.0	3.7	3.6	4.0	3.8	4.1	4.6	4.9	5.4	5.8	6.1	7.2	6.7	6.7	6.9	7.3	7.2	5.9	4.8	4.6	4.6	4.8	5.2
Key West, Fla	4.5	4.6	4.5	4.5	4.4	4.3	4.3	5.3	6.5	6.7	6.7	7.0	6.9	6.9	6.4	6.3	6.3	6.3	4.9	4.9	5.1	4.9	5.0	5.2	5.5
Kittyhawk, N. C	8.7	8.7	10.5	9.8	9.7	10.6	10.3	10.8	10.7	11.5	10.7	11.1	11.5	11.7	11.4	11.6	11.2	11.5	11.1	10.6	10.7	10.2	9.4	9.7	10.6
Knoxville, Tenn	2.5	2.4	2.9	3.0	2.7	2.6	3.0	3.5	4.5	5.0	5.0	5.2	5.7	6.0	6.4	6.9	5.6	5.0	4.5	3.5	3.3	2.8	2.8	2.6	4.0
La Crosse, Wis	4.8	5.3	4.9	4.5	4.5	5.0	5.1	4.5	5.4	5.4	5.2	5.5	6.5	6.5	7.1	6.8	6.7	6.7	6.1	4.9	5.0	4.4	4.6	4.5	5.4
Lander, Wyo	4.5	3.9	3.9	3.5	2.8	2.3	2.0	2.3	1.7	1.5	2.2	2.6	3.3	3.5	5.2	5.7	5.3	5.4	4.5	5.0	5.4	5.5	5.6	5.4	3.9
Lexington, Ky	8.2	7.9	7.9	7.7	7.9	7.3	7.0	6.9	7.2	8.2	8.2	7.9	8.5	9.8	10.0	10.1	10.8	10.4	9.1	8.3	8.4	8.5	8.6	8.9	8.5
Little Rock, Ark	3.4	3.8	3.7	4.3	4.0	4.1	4.1	4.4	4.6	5.4	6.2	6.8	7.3	7.5	7.6	8.0	7.8	6.9	5.6	4.7	4.6	3.8	3.4	3.2	5.2
Los Angeles, Cal	2.5	2.4	2.3	1.9	1.8	1.6	1.7	1.6	1.8	1.8	2.0	2.5	3.2	3.7	5.3	5.9	7.0	7.2	7.0	6.9	6.4	4.6	3.5	2.6	3.6
Louisville, Ky	4.8	4.5	4.7	4.5	4.5	4.9	4.6	5.2	5.6	5.6	6.2	6.9	7.9	7.9	8.5	8.6	8.8	8.9	7.8	6.5	5.9	5.6	5.9	5.7	6.3
Lynchburg, Va	1.4	1.3	1.3	1.4	1.3	1.3	1.5	2.0	2.8	3.6	4.2	4.3	4.4	4.4	4.7	5.4	5.2	4.3	4.1	2.9	1.9	1.5	1.1	1.1	2.8
Marquette, Mich	8.7	8.7	8.9	9.1	8.8	9.4	9.2	9.2	9.6	10.2	10.1	10.2	9.7	10.0	9.8	10.1	9.7	8.5	7.3	6.8	7.3	7.9	8.6	8.9	9.0
Memphis, Tenn	4.4	4.0	4.0	3.5	3.7	3.6	3.6	3.7	5.0	5.5	5.8	6.2	6.8	6.5	7.0	7.3	7.2	6.9	5.9	5.4	4.6	4.6	4.2	4.3	5.2
Meridian, Miss	2.8	2.4	2.0	2.4	2.4	2.1	2.1	2.3	3.8	4.7	4.9	5.6	5.6	6.2	6.8	6.0	6.0	6.0	5.1	3.8	2.8	2.6	2.5	2.6	3.9
Miles City, Mont	5.3	5.7	4.8	4.7	4.2	3.3	2.8	3.1	3.7	4.4	5.3	5.6	6.6	8.0	8.3	8.1	8.2	8.6	8.7	7.9	7.6	6.4	5.0	4.8	5.9
Milwaukee, Wis	6.7	7.1	7.1	7.1	7.9	7.6	7.1	7.0	7.6	8.5	9.3	9.4	10.7	11.2	12.2	11.7	11.8	10.9	9.0	7.6	7.1	7.5	7.7	7.3	8.6
Mobile, Ala	5.1	5.0	4.8	4.8	4.7	4.4	4.5	4.8	5.5	6.1	6.4	6.9	7.7	8.7	10.4	11.0	10.3	10.5	8.7	6.6	6.4	5.8	5.5	5.2	6.7
Montgomery, Ala	4.4	3.6	3.3	3.4	3.5	3.4	3.5	4.0	4.8	5.1	5.3	5.7	6.4	6.5	7.4	7.7	8.3	7.5	6.0	4.6	5.0	5.1	5.0	4.7	5.2
Moorhead, Minn	7.1	6.8	6.8	7.5	7.0	6.8	6.2	6.5	7.1	7.6	8.5	9.5	10.7	10.1	10.1	10.0	9.7	9.3	7.8	7.5	7.6	7.9	8.2	8.0	8.1
Nantucket, Mass	7.2	7.2	7.5	7.3	7.4	7.8	8.1	9.0	9.8	10.5	10.8	10.6	10.8	10.9	11.1	10.8	10.1	9.0	7.4	7.4	7.2	7.3	7.2	7.0	8.7
Nashville, Tenn	2.1	2.2	2.0	1.8	2.0	1.6	1.7	2.3	3.4	4.0	4.5	4.7	5.1	5.4	5.3	5.5	5.8	5.7	5.7	4.0	3.3	2.8	2.4	2.2	3.6
New Haven, Conn	5.3	5.3	5.4	5.3	5.0	5.1	5.4	6.7	7.8	8.1	8.3	8.9	9.3	9.9	10.5	10.1	9.6	8.2	6.8	6.2	5.9	5.4	5.2	5.3	7.0
New London, Conn	4.3	4.2	3.9	4.2	3.5	3.8	4.8	5.9	6.7	7.1	8.3	9.0	9.1	10.8	10.0	10.5	9.2	8.1	6.2	5.0	4.4	4.6	4.6	4.3	6.4
New Orleans, La	4.2	3.9	4.1	4.1	3.7	4.0	3.5	3.7	5.1	6.2	6.8	7.1	7.7	7.6	7.6	8.0	8.0	7.2	6.3	5.2	4.5	4.3	4.5	4.3	5.5
New York, N. Y	7.5	7.6	7.4	7.2	7.3	7.0	6.8	7.8	7.6	7.9	8.3	8.4	8.4	8.7	9.9	9.9	9.4	8.9	8.1	7.7	7.7	7.7	7.7	7.9	8.0
Norfolk, Va	4.6	4.6	4.3	4.5	4.2	4.3	4.2	5.0	5.7	6.2	6.4	7.3	7.9	7.3	7.7	7.7	8.1	7.4	6.1	5.2	5.2	4.9	5.1	4.9	5.8
Northfield, Vt	6.1	5.3	5.5	5.3	4.8	5.8	4.9	4.4	6.4	8.4	9.3	9.2	9.9	9.6	10.5	9.6	9.0	7.7	6.2	6.2	6.4	6.9	6.6	6.0	7.1
North Platte, Nebr	7.9	7.9	7.5	6.0	5.5	5.2	5.1	5.1	5.1	7.0	8.7	9.4	10.0	10.7	10.3	10.3	10.1	10.1	10.2	10.1	9.1	8.3	7.5	7.7	8.1
Oklahoma, Okla	4.0	3.9	4.1	3.6	3.5	3.3	2.9	3.3	4.1	5.0	6.1	6.4	6.6	7.0	7.4	7.4	8.0	7.6	7.4	6.1	4.9	4.5	4.7	4.7	5.3
Omaha, Nebr	5.5	5.8	5.0	4.1	4.0	4.1	4.3	4.2	4.9	5.7	7.1	8.0	8.7	9.2	8.9	9.0	8.8	8.9	8.3	6.8	5.4	5.8	6.1	5.0	6.4
Oswego, N. Y	8.3	8.6	8.2	8.2	8.5	7.7	7.6	8.3	8.8	9.3	10.4	10.4	10.6	10.7	9.6	9.4	8.9	7.9	7.6	8.1	8.4	8.4	8.0	8.2	8.8

TABLE VII.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Palestine, Tex	3.1	3.2	3.5	3.4	3.1	2.8	2.8	3.2	5.1	6.1	5.9	5.4	5.2	5.1	5.4	6.0	5.7	5.9	5.5	4.7	3.8	3.2	3.5	3.6	4.4
Parkersburg, W. Va	2.8	2.4	2.3	2.5	2.5	2.3	2.4	2.5	3.5	4.0	4.5	4.5	4.9	5.5	5.6	5.7	6.2	5.8	4.5	3.3	3.0	3.4	3.3	3.0	3.8
Pensacola, Fla	7.3	7.0	6.7	6.6	6.6	6.3	6.0	5.4	7.0	8.0	9.1	9.0	11.5	12.4	12.5	13.4	13.5	12.0	11.0	9.3	7.8	6.9	6.4	7.0	8.7
Philadelphia, Pa	7.1	7.0	7.1	6.7	7.4	6.9	6.5	7.5	8.0	8.6	8.9	8.5	9.3	9.1	9.5	9.8	9.4	8.6	7.7	7.5	7.8	7.2	6.7	6.8	7.9
Pikes Peak, Colo	14.9	15.2	15.0	14.8	14.6	13.8	13.5	13.2	12.0	11.1	10.9	9.7	9.8	9.9	10.4	10.5	10.9	10.2	10.8	10.4	11.5	11.9	12.1	13.1	12.1
Pittsburg, Pa	3.2	2.7	2.7	2.6	2.7	2.5	3.0	3.2	3.8	5.0	5.1	5.3	5.7	6.3	6.9	7.1	7.1	7.2	6.7	5.2	5.1	4.5	4.2	3.5	4.6
Port Angeles, Wash	4.2	3.9	4.3	4.0	3.6	3.3	3.3	3.0	3.3	2.4	2.7	3.8	4.7	5.4	5.9	6.4	6.9	7.2	8.0	8.1	7.9	6.4	4.8	4.2	4.9
Port Huron, Mich	7.4	7.4	7.7	8.0	7.6	7.2	7.4	7.5	8.4	9.1	9.5	10.3	11.5	11.8	12.0	12.2	12.3	11.6	10.4	9.1	8.9	8.8	8.4	8.1	9.3
Portland, Me	4.5	4.7	4.2	4.3	4.5	4.0	4.8	5.4	6.2	6.6	6.7	7.6	8.7	8.6	8.5	8.4	7.7	6.3	5.5	5.3	5.6	5.0	5.0	5.0	6.0
Portland, Oreg	9.2	7.8	6.2	5.0	4.4	4.3	3.7	3.4	3.1	3.7	5.3	6.7	7.6	7.6	7.6	7.8	9.1	8.9	9.6	9.9	9.9	9.6	10.0	10.4	7.1
Pueblo, Colo	6.8	6.5	5.8	6.0	4.9	4.2	3.8	3.8	3.4	3.3	4.5	4.4	5.6	7.3	7.7	7.8	8.4	9.2	9.5	8.9	9.1	8.5	7.1	6.2	6.4
Raleigh, N. C	3.5	3.5	3.3	3.2	3.3	3.2	3.3	3.8	4.0	4.3	4.9	4.6	5.6	5.2	5.2	4.6	4.2	4.2	3.4	3.3	3.1	3.7	3.3	3.3	3.9
Rapid City, S. Dak	7.4	7.0	6.9	7.5	7.6	7.0	7.3	7.1	6.5	6.5	7.1	8.7	9.1	9.9	9.7	10.5	9.5	9.5	10.0	9.6	8.5	7.4	7.2	7.2	8.1
Red Bluff, Cal	4.3	4.7	4.4	4.0	4.2	3.5	3.7	3.4	3.3	3.2	3.2	3.4	3.5	4.1	4.4	5.3	6.2	6.7	6.9	7.4	7.0	6.5	5.9	4.6	4.7
Rochester, N. Y	5.7	5.9	6.3	5.7	5.8	5.7	5.9	6.5	7.0	7.3	7.7	8.1	8.8	9.1	9.3	9.0	7.8	5.9	5.1	4.4	4.6	5.2	5.3	5.5	6.6
Roseburg, Oreg	1.2	1.1	0.9	0.7	0.7	0.7	0.6	0.5	0.6	0.6	0.9	1.7	2.5	3.0	3.5	3.8	4.7	5.9	6.7	7.8	7.6	6.2	4.0	2.5	2.9
Sacramento, Cal	9.7	9.8	10.2	10.2	10.0	9.4	9.2	9.2	8.3	7.3	6.7	6.5	6.9	6.9	7.2	7.5	8.2	8.5	8.9	9.9	9.7	10.4	11.1	10.0	8.8
St. Louis, Mo	7.9	7.8	7.3	7.2	7.4	7.2	7.2	7.5	7.8	7.5	7.5	7.3	8.5	8.6	8.9	9.3	9.1	8.5	8.9	9.9	9.7	10.4	11.1	10.0	8.8
St. Paul, Minn	4.0	3.9	3.3	3.7	4.0	3.9	4.2	4.3	4.8	5.5	6.3	7.1	7.3	7.8	8.6	9.3	9.1	8.2	8.9	9.4	8.3	7.4	7.4	7.9	8.0
St. Vincent, Minn	5.6	5.1	4.8	4.6	4.2	4.4	4.7	4.9	6.0	7.1	7.6	8.0	8.4	8.3	8.6	8.7	7.7	8.0	7.5	6.6	5.3	4.6	5.4	5.6	6.5
Salt Lake City, Utah	5.4	4.8	5.5	5.0	4.9	4.6	4.4	3.9	4.1	3.5	3.6	5.3	6.2	7.3	8.2	8.1	8.0	8.7	8.7	7.1	6.6	5.5	5.4	5.7	5.9
San Antonio, Tex	5.5	4.8	3.8	3.4	3.1	3.3	2.6	2.7	3.5	4.6	5.0	5.5	5.8	5.8	6.1	6.1	6.3	6.4	6.0	7.1	6.2	6.6	6.6	6.0	5.1
San Diego, Cal	2.6	2.6	2.4	2.3	2.0	2.2	2.2	2.4	2.8	2.5	3.3	4.7	6.3	7.9	8.8	8.9	9.0	8.7	8.1	7.1	6.3	5.0	3.9	3.3	4.8
Sandusky, Ohio	6.7	6.0	6.5	6.4	6.4	6.0	6.5	6.0	5.9	6.3	6.4	6.3	7.4	6.8	7.0	6.9	6.3	6.4	6.0	6.1	6.5	6.6	6.6	6.0	6.4
San Francisco, Cal	12.3	11.5	11.2	10.1	9.5	8.4	8.1	8.3	8.0	8.2	8.7	8.3	9.8	11.3	14.4	17.4	20.7	22.3	22.8	23.0	23.2	20.9	18.8	16.2	13.9
San Luis Obispo, Cal	2.5	2.4	2.5	2.2	2.2	2.4	2.7	3.1	3.3	3.6	4.0	4.2	4.6	6.0	7.6	9.2	9.5	9.5	9.0	8.9	7.7	5.7	4.5	3.6	5.0
Santa Fe, N. Mex	4.7	4.3	3.5	3.5	3.1	2.8	3.6	3.8	4.0	4.6	5.0	4.8	4.8	5.7	6.4	7.9	8.4	7.6	8.1	8.3	7.4	6.6	5.5	5.3	5.4
Sault Ste. Marie, Mich	3.8	3.6	3.6	3.6	3.7	3.8	4.0	3.8	5.1	6.5	6.6	7.3	8.8	9.1	10.0	9.8	9.8	8.8	8.1	6.1	4.9	4.5	4.1	4.2	6.0
Savannah, Ga	5.3	4.9	4.5	4.7	4.7	4.6	4.7	5.1	5.1	5.2	5.9	6.4	6.5	7.2	7.7	8.2	8.3	8.0	8.3	7.4	6.5	6.2	6.3	4.7	6.1
Seattle, Wash	2.1	1.6	1.8	1.9	1.5	1.6	1.3	1.7	1.6	2.0	2.5	2.8	3.5	3.9	4.0	4.8	4.7	4.8	4.9	5.2	4.7	3.8	2.9	3.0	3.0
Shreveport, La	3.2	2.8	2.3	2.4	2.7	2.7	3.2	3.3	3.7	4.5	4.3	4.2	4.9	5.3	5.7	6.2	5.8	5.6	5.5	4.1	4.0	4.1	3.6	3.5	4.1
Sioux City, Iowa	7.0	7.3	7.2	6.4	6.5	6.4	6.3	7.1	7.3	8.4	9.8	8.9	9.7	10.4	11.5	11.8	11.2	10.9	9.7	9.8	8.7	8.4	7.7	7.6	8.7
Southport, N. C	7.8	7.1	6.4	6.0	5.9	6.0	6.4	7.1	7.1	7.5	8.6	8.9	9.7	10.4	10.7	11.0	10.5	10.1	9.3	8.4	8.5	8.0	7.9	8.1	8.2
Spokane, Wash	3.3	3.3	3.6	2.8	2.8	2.8	2.4	2.5	2.4	2.6	3.7	4.9	5.0	4.9	5.2	5.1	5.9	5.8	6.1	6.1	5.7	4.5	4.3	3.8	4.1
Springfield, Ill	6.3	5.9	6.5	6.3	6.0	6.2	5.7	5.7	6.4	6.8	7.2	7.6	7.8	7.7	8.1	8.0	8.0	7.7	6.7	5.5	5.3	6.0	6.1	6.7	6.7
Springfield, Mo	7.1	6.9	6.9	6.5	6.2	5.8	5.5	5.2	5.3	6.7	7.6	7.0	7.6	7.9	8.0	8.5	8.2	7.9	6.8	6.3	6.6	6.5	7.1	6.9	
Tampa, Fla	3.3	3.2	3.5	3.2	3.4	3.5	3.6	3.5	4.5	5.2	6.0	6.8	7.1	7.5	7.6	7.9	8.2	8.1	7.2	6.8	6.3	6.6	6.5	7.1	6.9
Tatoosh Island, Wash	7.8	9.1	9.7	10.3	10.0	9.5	9.1	9.4	9.8	10.2	10.8	11.4	10.8	10.8	10.5	10.4	10.1	9.9	8.7	8.7	9.0	8.6	8.2	8.1	9.6
Titusville, Fla	6.1	6.2	5.8	5.5	5.9	5.5	5.9	5.8	6.7	7.1	8.3	8.6	9.4	11.0	11.5	12.9	13.0	11.7	10.8	10.4	8.7	7.2	7.1	6.5	8.2
Toledo, Ohio	6.6	6.5	6.6	6.5	6.4	5.7	6.1	6.7	6.8	7.1	7.9	8.6	9.4	9.5	9.5	9.7	9.3	8.9	7.8	6.4	6.5	6.8	6.8	6.7	7.5
Tucson, Ariz	4.5	4.7	3.8	3.6	3.3	3.2	3.2	3.2	3.0	3.4	4.1	4.5	5.2	5.4	5.5	6.1	7.1	7.7	7.7	6.9	6.7	6.3	4.9	4.4	4.9
Valentine, Nebr	7.9	8.8	9.1	8.0	7.1	7.3	6.6	5.7	6.2	7.6	9.5	11.2	12.7	13.2	13.4	13.6	12.7	12.8	12.4	11.8	11.4	8.8	7.5	7.4	9.7
Vicksburg, Miss	3.5	3.9	3.5	3.4	3.5	3.5	3.2	3.2	3.3	4.4	4.5	4.5	5.0	5.6	5.9	6.2	6.3	8.2	4.5	3.8	3.6	3.7	3.4	3.3	4.2
Vineyard Haven, Mass	6.4	6.3	6.3	6.0	6.4	6.4	7.3	8.2	8.5	8.9	9.3	9.5	9.7	9.8	9.6	9.1	8.2	7.2	7.0	6.6	6.5	6.3	6.2	7.6	
Walla Walla, Wash	4.8	4.5	5.0	5.3	4.8	4.4	4.3	4.1	4.1	3.8	3.9	4.3	4.9	4.8	4.9	5.3	4.8	4.7	4.6	5.3	5.2	4.4	4.7	5.0	4.7
Washington, D. C	2.7	2.5	2.7	2.6	2.9	2.8	2.6	3.9	4.5	5.3	6.0	6.4	7.2	7.0	6.8	6.4	6.4	5.7	4.4	3.5	2.9	3.0	3.2	2.5	4.3
Wichita, Kans	5.0	5.1	4.5	4.2	3.9	3.9	4.0	4.0	4.5	5.2	6.4	7.1	6.9	7.0	7.0	6.9	6.8	6.4	5.2	4.5	4.5	4.8	4.8	4.8	5.4
Williston, N. Dak	7.0	6.5	5.0	4.9	4.5	5.1	5.3	5.5	6.0	6.7	7.2	8.9	10.3	11.0	11.4	11.5	12.1	11.3	9.4	7.9	7.9	7.3	7.2	6.9	7.9
Wilmington, N. C	4.4	4.5	4.2	4.8	4.7	4.9	4.8	5.3	6.0	6.5	6.9	7.7	8.3	9.3	9.5	8.7	7.6	6.6	5.4	5.1	4.6	4.4	4.4	4.4	6.1
Winnemucca, Nev	7.7	7.9	8.4	8.4	8.3	7.9	7.3	7.6	6.5	5.9	6.3	7.6	8.2	8.4	9.6	10.4	9.7	9.6	9.7	9.3	8.8	7.9	7.9	8.3	
Woods Holl, Mass	12.1	12.4	11.4	10.4	10.7	10.4	11.0	11.2	11.3	12.1	12.1	12.2	12.5	12.8	13.2	13.3	13.3	12.5	11.8	10.6	10.6	10.7	11.0	11.5	11.7
Yuma, Ariz	6.5	5.0	5.6	4.8	4.6	4.9	4.9	4.4	3.5	4.7	6.4	6.6	6.5	6.9	7.2	7.7	7.9	9.3	9.7	10.2	10.2	8.8	7.9	7.0	6.7

TABLE VIII.—*Prevailing and resultant winds from self-registers for August, 1894.*

Number.	Station.	Prevailing wind.		Total movement.		Resultant direction.			Resultant movement.		Azimuth of movement minus direction.	Ratio of resultant movement to total movement.
		Direction from.	Duration.	Monthly.	Hourly average.	Direction from.	Duration.	Average hourly velocity.	Direction from.	Amount.		
	(1)	(2)	(3) Hours.	(4) Miles.	(5) Miles.	(6)	(7) Hours.	(8) Miles.	(9)	(10) Miles.	(11) °	(12)
1	Eastport, Me	sw.	178	4,681	6.3	s. 57 w.	257	7.0	s. 70 w.	1,791	+ 13	0.383
2	Portland, Me	*	150	4,430	6.0	s. 52 w.	202	6.8	s. 46 w.	1,382	− 6	0.312
4	Boston, Mass	sw.	202	7,038	9.5	s. 60 w.	193	10.4	s. 60 w.	2,005	0	0.285
5	Nantucket, Mass	w.	242	6,484	8.7	s. 68 w.	174	5.2	s. 65 w.	904	− 3	0.139
8	New Haven, Conn	sw.	165	5,233	7.0	s. 46 w.	124	6.3	s. 30 w.	783	− 16	0.150
10	Albany, N. Y	s.	236	4,506	6.1	s. 52 w.	94	7.1	s. 52 w.	664	0	0.147
11	New York, N. Y	s.	211	5,980	8.0	s. 47 w.	179	7.1	s. 48 w.	1,267	+ 1	0.212
13	Philadelphia, Pa	sw.	169	5,876	7.9	s. 75 w.	125	8.4	n. 84 w.	1,045	+ 21	0.178
15	Baltimore, Md	se.	139	3,880	5.2	n. 61 w.	18	10.5	s. 79 e.	189	+ 162	0.049
16	Washington, D. C	s.	205	3,219	4.3	s. 68 e.	83	3.5	s. 41 e.	287	+ 27	0.089
17	Lynchburg, Va	ne.	157	2,089	2.8	s. 85 e.	117	3.2	n. 73 e.	376	− 22	0.180
18	Norfolk, Va	ne.	204	4,302	5.8	n. 74 e.	206	4.6	n. 85 e.	958	+ 11	0.223
24	Wilmington, N. C	sw.	203	4,565	6.1	s. 47 w.	106	5.9	s. 42 w.	630	− 5	0.138
26	Augusta, Ga	ne.	113	2,592	3.5	n. 73 e.	41	4.1	n. 73 e.	170	0	0.066
27	Savannah, Ga	sw.	193	4,534	6.1	s. 32 w.	303	6.0	s. 21 w.	1,814	− 11	0.400
28	Jacksonville, Fla	sw.	251	4,840	6.5	s. 26 w.	322	7.6	s. 15 w.	2,431	− 11	0.502
30	Key West, Fla	se.	259	4,102	5.5	s. 66 e.	461	5.9	s. 67 e.	2,710	− 1	0.661
33	Atlanta, Ga	w.	153	5,354	7.2	n. 39 w.	64	7.8	n. 10 w.	498	+ 29	0.093
38	Vicksburg, Miss	sw.	167	3,142	4.2	s. 44 w.	85	4.5	s. 52 w.	379	+ 8	0.121
39	New Orleans, La	sw.	203	4,084	5.5	s. 64 w.	275	5.8	s. 81 w.	1,581	+ 17	0.387
42	Little Rock, Ark	ne.	143	3,882	5.2	n. 32 e.	141	8.0	n. 43 e.	1,126	+ 11	0.290
44	Galveston, Tex	sw.	234	5,502	7.4	s. 18 w.	453	7.3	s. 18 w.	3,289	0	0.598
48	Knoxville, Tenn	ne.	197	3,013	4.0	n. 53 e.	205	3.4	n. 52 e.	687	− 1	0.228
49	Memphis, Tenn	ne.	142	3,837	5.2	n. 15 e.	75	6.1	n. 44 e.	460	+ 29	0.120
50	Nashville, Tenn †	w.	116	2,612	3.6	s. 72 w.	68	4.3	n. 68 w.	290	+ 40	0.111
52	Louisville, Ky	n.	173	4,658	6.3	n. 63 w.	44	18.5	n. 39 w.	813	+ 24	0.175
53	Indianapolis, Ind	n.	158	3,396	4.6	n. 22 w.	141	6.1	n. 21 w.	866	+ 1	0.255
54	Cincinnati, Ohio	ne.	135	4,052	5.4	n. 73 e.	151	4.7	n. 18 e.	711	− 55	0.175
55	Columbus, Ohio	ne.	124	4,427	6.0	n. 24 e.	88	6.0	n. 21 w.	527	− 45	0.119
56	Pittsburg, Pa	n.	155	3,445	4.6	n. 40 w.	150	4.7	n. 58 w.	701	− 18	0.204
58	Buffalo, N. Y	sw.	160	5,973	8.0	w.	166	13.0	w.	2,154	0	0.361
60	Rochester, N. Y	sw.	275	4,885	6.6	s. 58 w.	217	7.9	s. 69 w.	1,714	+ 11	0.351
62	Cleveland, Ohio	se.	152	6,804	9.1	n. 39 w.	64	16.5	n. 50 w.	1,057	− 11	0.155
64	Toledo, Ohio	e.	144	5,548	7.5	n. 11 w.	79	9.8	n. 16 w.	775	− 5	0.140
65	Detroit, Mich	sw.	229	5,644	7.6	n. 51 w.	63	16.7	n. 79 w.	1,052	− 28	0.186
66	Alpena, Mich	se.	154	5,485	7.4	n. 17 w.	34	8.7	n. 1 w.	295	+ 16	0.054
67	Grand Haven, Mich	nw.	168	5,557	7.5	n. 42 w.	65	17.1	n. 87 w.	1,110	− 45	0.200
68	Marquette, Mich	n.	227	6,722	9.0	n. 36 w.	293	9.8	n. 67 w.	2,887	− 31	0.429
70	Sault Ste. Marie, Mich	nw.	209	4,457	6.0	n. 43 w.	57	14.4	n. 50 w.	824	− 7	0.185
71	Chicago, Ill	ne.	193	10,588	14.2	s. 61 e.	93	9.8	n. 89 e.	916	− 30	0.086
72	Milwaukee, Wis	ne.	152	6,423	8.6	s. 64 e.	83	7.2	n. 78 e.	602	− 38	0.094
74	Duluth, Minn	e.	187	4,251	5.7	n. 45 e.	262	2.8	n. 58 e.	739	+ 13	0.174
75	Moorhead, Minn	n.	289	6,020	8.1	n. 27 e.	159	3.8	n. 78 e.	604	+ 51	0.100
77	Bismarck, N. Dak	e.	178	6,059	8.1	n. 86 e.	168	7.2	s. 84 e.	1,218	+ 10	0.201
79	Saint Paul, Minn	nw.	185	4,154	5.6	n. 89 w.	58	13.1	n. 83 w.	761	+ 6	0.183
81	Davenport, Iowa	sw.	189	4,752	6.4	s. 14 w.	53	2.0	s. 75 w.	105	+ 61	0.022
82	Des Moines, Iowa	sw.	152	4,204	5.7	n. 69 e.	59	0.0	n.	1	− 69	0.000
88	Saint Louis, Mo	n.	159	5,940	8.0	n. 10 w.	45	11.3	n. 55 w.	510	− 45	0.086
90	Kansas City, Mo	s.	157	4,509	6.1	s. 69 e.	166	6.8	s. 55 e.	1,133	+ 14	0.251
92	Omaha, Nebr	s.	167	4,789	6.4	s. 54 e.	131	9.1	s. 51 e.	1,195	+ 3	0.249
96	Huron, S. Dak	se.	202	8,891	12.0	s. 82 e.	214	13.7	s. 68 e.	2,935	+ 14	0.330
98	Havre, Mont	sw.	152	4,645	6.2	n. 61 w.	150	7.9	n. 75 w.	1,182	− 14	0.254
100	Helena, Mont	sw.	267	5,075	6.8	s. 80 w.	297	7.3	s. 76 w.	2,175	− 4	0.428
106	Colorado Springs, Colo	n.	359	5,218	7.0	n. 7 e.	211	6.2	n.	1,299	− 7	0.249
107	Denver, Colo	s.	213	4,681	6.3	s. 23 w.	194	5.4	s. 12 w.	1,051	− 11	0.224
108	Pikes Peak, Colo	ne.	241	8,998	12.1	n. 71 e.	226	10.1	n. 80 e.	2,276	+ 9	0.253
111	Dodge City, Kans	s.	217	7,051	9.5	s. 47 e.	355	11.0	s. 35 e.	3,905	+ 12	0.554
114	Abilene, Tex	se.	192	4,311	5.8	s. 35 e.	242	4.8	s. 47 e.	1,160	− 12	0.269
116	El Paso, Tex	ne.	236	6,261	8.4	n. 71 e.	382	8.3	n. 59 e.	3,184	− 12	0.508
117	Santa Fe, N. Mex	ne.	171	4,021	5.4	s. 81 e.	188	6.1	s. 75 e.	1,150	+ 6	0.286
119	Yuma, Ariz	sw.	164	4,994	6.7	s. 9 w.	271	9.3	s. 6 w.	2,533	− 3	0.507
122	Salt Lake City, Utah	se.	200	4,358	5.9	s. 35 e.	232	4.6	s. 22 e.	1,062	+ 13	0.244
125	Spokane, Wash	s.	132	3,681	4.1	s. 33 w.	95	8.8	s. 21 w.	839	− 12	0.272
130	Seattle, Wash	w.	147	2,249	3.0	s. 84 w.	114	4.4	s. 88 w.	508	+ 4	0.226
132	Portland, Oregon	nw.	481	5,295	7.1	n. 39 w.	505	7.6	n. 36 w.	3,849	+ 3	0.727
133	Roseburg, Oregon	nw.	199	2,122	2.9	n. 38 w.	294	5.0	n. 33 w.	1,480	+ 5	0.698
137	San Francisco, Cal	sw.	594	10,335	13.9	s. 38 w.	673	14.7	s. 41 w.	9,885	+ 3	0.956
140	San Diego, Cal	w.	280	3,577	4.8	s. 82 w.	510	5.4	s. 79 w.	2,779	− 3	0.577

*S. and W.

† Data for 29½ days.

TABLE IX.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during August, 1894.*

Number.	Station.	Component direction from—				Resultant.	
		N.	S.	E.	W.	Direction from—	Duration.
	New England.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
1	Eastport, Me	14	27	9	26	S. 52 W.	22
2	Portland, Me	13	23	9	27	S. 61 W.	21
3	Northfield, Vt	20	28	9	18	S. 48 W.	12
4	Boston, Mass	11	19	16	31	S. 62 W.	17
5	Nantucket, Mass	14	18	16	27	S. 70 W.	12
6	Woods Holl, Mass	3	17	9	13	S. 16 W.	15
7	Block Island, R. I	13	23	19	25	S. 31 W.	12
8	New Haven, Conn	24	23	13	17	N. 76 W.	4
9	New London, Conn	21	22	11	21	S. 84 W.	10
	Middle Atlantic States.						
10	Albany, N. Y	25	23	8	15	N. 74 W.	7
11	New York, N. Y	21	28	7	17	S. 55 W.	12
12	Harrisburg, Pa	22	18	19	11	N. 63 E.	9
13	Philadelphia, Pa	20	25	14	21	S. 54 W.	9
14	Atlantic City, N. J	16	26	15	19	S. 22 W.	11
15	Baltimore, Md	21	22	16	15	S. 45 E.	1
16	Washington, D. C	21	26	20	8	S. 67 E.	13
17	Lynchburg, Va	15	22	27	12	S. 65 E.	17
18	Norfolk, Va	21	15	30	9	N. 74 E.	22
	South Atlantic States.						
19	Charlotte, N. C	7	31	21	18	S. 7 E.	24
20	Hatteras, N. C	25	17	20	14	N. 37 E.	10
21	Kittyhawk, N. C	21	12	38	9	N. 73 E.	30
22	Raleigh, N. C	19	22	19	18	S. 18 E.	3
23	Southport, N. C	16	11	18	29	N. 66 W.	12
24	Wilmington, N. C	19	24	12	22	S. 63 W.	11
25	Charleston, S. C	12	22	18	23	S. 27 W.	11
26	Augusta, Ga	19	16	24	17	N. 67 E.	8
27	Savannah, Ga	8	33	14	23	S. 20 W.	27
28	Jacksonville, Fla	7	29	15	20	S. 26 W.	25
	Florida Peninsula.						
29	Jupiter, Fla	4	34	11	25	S. 25 W.	33
30	Key West, Fla	7	22	46	2	S. 71 E.	46
31	Tampa, Fla	14	17	22	24	S. 34 W.	4
32	Titusville, Fla	4	34	9	30	S. 35 W.	37
	Eastern Gulf States.						
33	Atlanta, Ga	17	11	25	22	N. 27 E.	7
34	Pensacola, Fla	20	20	9	35	W.	26
35	Mobile, Ala	22	17	2	32	N. 81 W.	30
36	Montgomery, Ala	19	14	16	25	N. 61 W.	10
37	Meridian, Miss	14	23	18	23	S. 29 W.	10
38	Vicksburg, Miss	13	21	19	21	S. 14 W.	8
39	New Orleans, La	10	28	7	30	S. 52 W.	29
	Western Gulf States.						
40	Shreveport, La	19	21	22	16	S. 73 E.	6
41	Fort Smith, Ark	13	16	37	5	S. 85 E.	32
42	Little Rock, Ark	22	17	22	19	N. 31 E.	6
43	Corpus Christi, Tex	2	42	38	2	S. 42 E.	54
44	Galveston, Tex	1	41	9	23	S. 19 W.	42
45	Palestine, Tex	12	26	26	15	S. 38 E.	18
46	San Antonio, Tex	10	28	32	7	S. 54 E.	31
	Ohio Valley and Tennessee.						
47	Chattanooga, Tenn	5	21	19	12	S. 24 E.	18
48	Knoxville, Tenn	16	10	27	22	N. 40 E.	8
49	Memphis, Tenn	18	15	27	17	N. 73 E.	10
50	Nashville, Tenn	14	18	20	22	S. 27 W.	4
51	Lexington, Ky	15	26	20	19	S. 5 E.	11
52	Louisville, Ky	28	23	12	11	N. 11 E.	5
53	Indianapolis, Ind	30	17	14	17	N. 13 W.	13
54	Cincinnati, Ohio	19	14	29	13	N. 73 E.	17
55	Columbus, Ohio	24	17	22	13	N. 52 E.	11
56	Pittsburg, Pa	22	18	15	21	N. 56 W	7
57	Parkersburg, W. Va	16	20	25	12	S. 73 E.	14
	Lower Lake Region.						
58	Buffalo, N. Y	16	19	14	26	S. 76 W.	12
59	Oswego, N. Y	17	25	8	19	S. 54 W.	14
60	Rochester, N. Y	14	26	13	30	S. 55 W.	21
61	Erie, Pa	18	21	16	21	S. 59 W.	6
62	Cleveland, Ohio	22	19	23	16	N. 67 E.	8
63	Sandusky, Ohio	10	22	26	17	S. 37 E.	15
64	Toledo, Ohio	20	15	21	21	N.	5
65	Detroit, Mich	20	19	22	20	N. 63 E.	2
	Upper Lake Region.						
66	Alpena, Mich	20	23	17	18	S. 18 W.	3
67	Grand Haven, Mich	21	15	20	19	N. 9 E.	6
68	Marquette, Mich	29	14	7	21	N. 43 W.	20
69	Port Huron, Mich	23	22	18	17	N. 45 E.	1
70	Sault Ste. Marie, Mich	18	20	20	24	S. 63 W.	4
	Upper Lake Region—Cont'd.						
71	Chicago, Ill	15	24	23	16	S. 38 E.	11
72	Milwaukee, Wis	20	21	19	19	S.	1
73	Green Bay, Wis	21	25	18	10	S. 63 E.	9
74	Duluth, Minn	24	9	22	16	N. 22 E.	16
	North Dakota.						
75	Moorhead, Minn	31	21	14	7	N. 35 E.	12
76	Saint Vincent, Minn	29	19	14	15	N. 6 W.	10
77	Bismarck, N. Dak	20	13	28	13	N. 65 E.	17
78	Williston, N. Dak	19	20	23	10	S. 62 E.	15
	Upper Mississippi Valley.						
79	Saint Paul, Minn	27	18	15	21	N. 34 W.	11
80	La Crosse, Wis	22	32	6	7	S. 6 W.	10
81	Davenport, Iowa	21	17	22	17	N. 51 E.	6
82	Des Moines, Iowa	19	18	22	18	N. 76 E.	4
83	Keokuk, Iowa	22	18	17	16	N. 14 E.	4
84	Cairo, Ill	24	22	14	15	N. 27 W.	2
85	Springfield, Ill	21	20	14	19	N. 79 W.	5
86	Hannibal, Mo	20	17	17	17	N.	3
87	Saint Louis, Mo	22	20	15	19	N. 63 W.	4
	Missouri Valley.						
88	Columbia, Mo	6	12	13	8	S. 40 E.	8
89	Kansas City, Mo	16	27	24	10	S. 65 E.	26
90	Springfield, Mo	14	29	25	8	S. 48 E.	23
91	Omaha, Nebr	22	25	18	8	S. 73 E.	10
92	Valentine, Nebr	18	21	17	15	S. 34 E.	4
93	Sioux City Iowa	24	27	21	2	S. 81 E.	19
94	Pierre, S. Dak						
95	Huron, S. Dak	25	21	23	6	N. 77 E.	18
	Northern Slope.						
96	Havre, Mont	23	16	16	25	N. 52 W.	11
97	Miles City, Mont	20	15	25	16	N. 61 E.	10
98	Helena, Mont	12	25	6	37	S. 67 W.	34
99	Rapid City, S. Dak	11	20	17	23	S. 34 W.	11
100	Cheyenne, Wyo	27	17	11	26	N. 56 W.	18
101	Lander, Wyo	18	27	7	26	S. 65 W.	21
102	North Platte, Nebr	12	31	21	11	S. 28 E.	22
	Middle Slope.						
103	Colorado Springs, Colo	39	17	5	7	N. 5 W.	22
104	Denver, Colo	13	32	9	23	S. 36 W.	24
105	Pikes Peak, Colo	20	16	27	15	N. 72 E.	13
106	Pueblo, Colo	26	14	21	22	N. 5 W.	12
107	Concordia, Kans	7	29	20	12	S. 20 E.	23
108	Dodge City, Kans	13	34	22	6	S. 37 E.	26
109	Wichita, Kans	13	31	24	8	S. 42 E.	24
110	Oklahoma, Okla	12	34	16	18	S. 5 W.	22
	Southern Slope.						
111	Abilene, Tex	13	31	19	12	S. 21 E.	19
112	Amarillo, Tex	8	42	11	6	S. 5 E.	34
	Southern Plateau.						
113	El Paso, Tex	17	9	42	7	N. 77 E.	36
114	Santa Fe, N. Mex	16	22	33	7	S. 77 E.	27
115	Tucson, Ariz	9	32	28	15	S. 29 E.	26
116	Yuma, Ariz	7	29	16	24	S. 20 W.	23
	Middle Plateau.						
117	Winnemucca, Nev	12	21	13	31	S. 63 W.	20
118	Salt Lake City, Utah	12	26	25	14	S. 38 E.	18
	Northern Plateau.						
119	Baker City, Oreg	19	29	15	20	S. 27 W.	11
120	Idaho Falls, Idaho	21	20	12	31	N. 87 W.	19
121	Spokane, Wash	19	23	13	21	S. 63 W.	9
122	Walla Walla, Wash	21	25	7	17	S. 68 W.	11
	North Pacific Coast Region.						
123	Fort Canby, Wash	27	13	14	23	N. 33 W.	17
124	Port Angeles, Wash	4	24	9	33	S. 50 W.	31
125	Seattle, Wash	18	16	16	24	N. 76 W.	8
126	Tatoosh Island, Wash	3	34	18	21	S. 6 W.	31
127	Portland, Oreg	38	7	2	32	N. 44 W.	43
128	Roseburg, Oreg	34	7	11	20	N. 18 W.	28
	Middle Pacific Coast Region.						
129	Eureka, Cal	24	17	4	27	N. 73 W.	24
130	Red Bluff, Cal	18	31	13	11	S. 9 E.	13
131	Sacramento, Cal	3	50	5	18	S. 15 W.	49
132	San Francisco, Cal	0	46	1	34	S. 36 W.	57
	South Pacific Coast Region.						
133	Fresno, Cal	37	3	3	40	N. 48 W.	50
134	Los Angeles, Cal	10	11	13	41	S. 88 W.	28
135	San Diego, Cal	13	15	3	40	S. 87 W.	37
136	San Luis Obispo, Cal	11	25	3	36	S. 67 W.	36

TABLE Xa.—*Temperature data for selected voluntary stations, August, 1894.*

State and station.	Normal for month.	Length of record.	Mean, Aug., 1894.	Departure from the normal.	Extreme monthly means.			
					Highest.	Year.	Lowest.	Year.
Arizona.	°	*Years*	°	°	°		°	
Fort Apache	72.3	21	70.6	— 1.7	77.1	1877	67.9	1884
Whipple Barracks	72.3	23	71.2	— 1.1	78.9	1879	67.8	1891
Arkansas.								
Keesees Ferry	77.6	12	76.0	— 1.6	81.0	1886	74.4	1893
California.								
Riverside	77.3	12	74.4	— 2.9	81.5	1885	73.6	1887
Colorado.								
Las Animas	73.4	11	72.0	— 1.4	77.1	1889	70.4	1884
Florida.								
Merritts Island	81.2	12	82.3	+ 1.1	83.8	1883	77.9	1892
Georgia.								
Forsyth	78.8	20	79.4	+ 0.6	82.4	1878	73.2	1885
Idaho.								
Boise Barracks	72.2	20	73.8	+ 1.6	75.1	1878	67.3	1881
Fort Sherman	66.3	10	69.6	+ 3.3	69.6	1894	63.7	1889
Indiana.								
Lafayette	70.6	12	73.1	+ 2.5	74.0	1886	68.2	1885
Iowa.								
Cresco	68.6	21	72.0	+ 3.4	72.6	1881	63.1	1885
Kansas.								
Eureka Ranch	76.8	11	78.6	+ 1.8	80.8	1889	73.2	1893
Independence	77.7	22	81.8	+ 4.1	85.8	1874	72.8	1884
Salina	77.5	11	80.5	+ 3.0	81.7	1888	74.2	1883
Louisiana.								
Grand Coteau	80.9	10	78.0	— 2.9	83.6	1883	78.0	1894
Maine.								
Orono	65.3	24	.....	.....	67.5	1881	63.1	1874
Maryland.								
Cumberland	71.5	23	70.8	— 0.7	75.7	1871, 1872	68.5	1883
Michigan.								
Kalamazoo	69.5	17	70.0	+ 0.5	73.0	1881	63.8	1885
Missouri.								
Sedalia	76.8	13	79.1	+ 2.3	85.4	1881	72.6	1891
Montana.								
Fort Custer	70.0	13	72.2	+ 2.2	73.8	1891	66.2	1885
Nebraska.								
Fort Robinson	69.9	11	72.0	+ 2.1	74.3	1886	64.7	1888
Genoa (near)	72.4	18	77.8	+ 5.4	77.8	1894	68.5	1885
Nevada.								
Carson City	69.1	18	66.1	— 3.0	72.4	1878	63.8	1876
New Hampshire.								
Hanover	66.1	21	62.6	— 3.5	70.4	1881	59.2	1885
New Mexico.								
Fort Wingate	70.2	22	70.0	— 0.2	76.7	1877	65.8	1887
New York.								
Cooperstown	66.3	23	63.2	— 3.1	71.5	1877	62.4	1889
Plattsburg Barracks	67.7	23	64.2	— 3.5	71.3	1872	64.2	1894
North Carolina.								
Lenoir	73.1	21	72.9	— 0.2	77.0	1877	70.0	1890
Oklahoma.								
Fort Reno	78.3	10	78.6	+ 0.3	83.2	1886	75.2	1893
Fort Sill	80.5	23	78.1	— 2.4	91.0	1874	75.0	1892
Fort Supply	78.9	15	77.1	— 1.8	90.8	1874	76.0	1882, 1893
Oregon.								
Bandon	57.3	10	59.0	+ 1.7	61.1	1891	54.4	1886
Pennsylvania.								
Dyberry	65.0	23	64.6	— 0.4	68.3	1872	61.2	1889
Grampian	67.9	23	69.0	+ 1.1	73.1	1881	64.4	1873
Wellsboro	65.2	15	62.6	— 2.6	71.3	1881	62.0	1891
South Carolina.								
Statesburg	76.6	13	76.5	— 0.1	79.7	1881	73.5	1889
South Dakota.								
Fort Sully	73.1	23	77.5	+ 4.4	77.5	1894	67.6	1885
Texas.								
Austin	83.8	21	82.4	— 1.4	86.5	1874, 1886	80.0	1880
Silver Falls	78.4	8	74.0	— 4.4	81.4	1887	74.0	1894
Utah.								
Terrace	77.4	20	82.1	+ 4.7	83.8	1888	65.6	1872
Vermont.								
Strafford	67.3	21	62.0	— 5.3	72.6	1884	62.0	1894
Virginia.								
Dale Enterprise	74.2	14	71.2	— 3.0	77.5	1888	67.0	1890
Washington.								
Fort Townsend	61.3	21	62.8	+ 1.5	64.3	1874	58.9	1876
West Virginia.								
Parkersburg	.....	.....	.....	.....	.....	.....	.....	.....
Wisconsin.								
Madison	69.5	23	71.6	+ 2.1	73.2	1881	64.2	1885
Wyoming.								
Fort Washakie	64.5	12	67.6	+ 3.1	72.2	1881	64.1	1888

TABLE Xb.—*Precipitation data for selected voluntary stations, Aug., 1894.*

State and station.	Normal for month.	Length of record.	Total, Aug., 1894.	Departure from the normal.	Extremes.			
					Greatest.		Least.	
					Amt.	Year.	Amt.	Year.
Arizona.	*Inches.*	*Years*	*Inches.*	*Inches.*	*Inches.*		*Inches*	
Fort Apache	3.82	18	5.01	+ 1.19	9.33	1878	1.00	1888
Whipple Barracks	2.97	23	3.88	+ 0.91	6.34	1878	0.24	1873
Arkansas.								
Keesees Ferry	5.21	12	3.32	— 1.89	11.53	1888	2.37	1891
California.								
Riverside	0.28	13	0.21	— 0.07	3.00	1884	0.00	*
Colorado.								
Las Animas	1.54	11	0.02	— 1.52	3.75	1885	0.02	1894
Florida.								
Merritts Island	5.77	16	5.79	+ 0.02	15.77	1880	1.15	1883
Georgia.								
Forsyth	5.53	20	9.54	+ 4.01	13.45	1893	2.50	1888
Idaho.								
Boise Barracks	0.21	20	0.06	— 0.15	1.65	1873	0.00	†
Fort Sherman	0.39	10	0.02	— 0.37	1.51	1892	0.00	†
Indiana.								
Lafayette	3.54	12	2.51	— 1.03	7.17	1890	0.77	1893
Iowa.								
Cresco	3.02	21	1.03	— 1.99	8.34	1884	0.92	1889
Kansas.								
Independence	3.09	22	0.66	— 2.43	7.46	1885	0.66	1894
Salina	2.86	11	0.50	— 2.36	6.60	1887	0.30	1882
Louisiana.								
Grand Coteau	3.93	10	3.48	— 0.45	8.07	1888	0.42	1883
Maine.								
Orono	3.79	23	.....	.....	7.36	1885	0.53	1883
Maryland.								
Cumberland	3.14	23	1.15	— 1.99	8.09	1882	0.31	1881
Michigan.								
Kalamazoo	2.60	18	0.91	— 1.69	8.94	1885	0.31	1889
Missouri.								
Sedalia	2.06	16	0.68	— 1.38	5.83	1888	0.29	1892
Montana.								
Fort Custer	1.02	13	0.00	— 1.02	2.55	1880	0.00	1893, 1894
Nebraska.								
Fort Robinson	1.90	11	0.24	— 1.66	3.32	1887	0.24	1894
Genoa (near)	2.57	18	1.04	— 1.53	5.81	1892	0.45	1881
Nevada.								
Carson City	0.13	18	0.05	— 0.08	1.13	1890	0.00	*
New Hampshire.								
Hanover	3.56	23	2.18	— 1.38	7.77	1885, 1890	0.42	1876
New Mexico.								
Fort Wingate	2.00	23	3.33	+ 1.33	5.90	1878	0.24	1888
New York.								
Cooperstown	3.79	23	1.88	— 1.91	9.08	1885	0.63	1876
Plattsburg Barracks	3.35	23	0.89	— 2.46	7.18	1892	0.37	1876
North Carolina.								
Lenoir	5.81	22	4.50	— 1.31	10.20	1886	2.10	1877
Oklahoma.								
Fort Reno	3.65	11	1.61	— 2.04	10.25	1893	0.34	1886
Fort Sill	3.24	22	2.47	— 0.77	9.73	1888	T.	1874
Fort Supply	2.18	15	0.26	— 1.92	5.32	1883	0.26	1894
Oregon.								
Bandon	0.53	15	0.00	— 0.53	2.16	1879	0.00	1888, 1894
Pennsylvania.								
Dyberry	4.33	22	1.27	— 3.06	8.77	1885	0.95	1883
Grampian	4.37	17	1.15	— 3.22	8.19	1888	1.15	1894
Wellsboro	5.08	15	2.05	— 3.03	15.25	1885	0.83	1889
South Carolina.								
Statesburg	5.21	13	11.85	+ 6.64	14.29	1893	1.38	1892
South Dakota.								
Fort Sully	1.86	23	0.65	— 1.21	5.26	1880	0.20	1882
Texas.								
Austin	2.13	22	5.30	+ 3.17	6.45	1892	T.	1877
Silver Falls	2.29	8	4.21	+ 1.92	4.29	1888	0.00	1889
Utah.								
Terrace	0.15	22	0.00	— 0.15	1.21	1878	0.00	*
Vermont.								
Strafford	3.86	21	2.95	— 0.91	8.85	1890	1.40	1882
Virginia.								
Dale Enterprise	4.26	14	1.70	— 2.56	10.50	1882	1.26	1890
Washington.								
Fort Townsend	1.66	20	0.37	— 1.29	2.52	1891	0.00	1885
West Virginia.								
Parkersburg	3.87	9	.....	.....	6.71	1888	0.88	1887
Wisconsin.								
Madison	2.40	23	0.54	— 1.86	6.83	1882	0.54	1894
Wyoming.								
Fort Washakie	0.58	12	0.09	— 0.49	2.06	1888	T.	1886

*Generally. †Frequently.

TABLE XI.—*Thunderstorms and auroras, August, 1894.*

States.	No. of stations.		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
Alabama	52	T.	3	4	3	1	1	....	1	....	....	....	....	....	1	....	3	3	2	3	2	1	4	3	1	2	1	2	1	....	3	....	1	2	48 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Arizona	48	T.	2	3	3	2	4	1	....	....	1	....	....	1	1	2	3	2	3	1	3	3	5	4	4	1	....	3	1	4	2	3	2	64 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Arkansas	50	T.	6	7	....	....	....	....	....	....	1	1	4	5	1	2	4	8	7	....	1	3	5	....	1	1	1	6	1	....	....	4	1	70 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
California	316	T.	....	1	4	....	....	....	....	....	2	1	....	....	....	1	1	....	....	....	....	2	....	....	....	....	3	7	7	11	....	....	....	40 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	9	3	....	....	....	....	....	....	....	....	....	....	....	....	12 A.
Colorado	81	T.	11	10	....	1	8	2	8	14	10	5	6	1	4	11	4	6	2	5	4	6	6	9	6	....	....	....	1	2	3	....	3	148 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....	....	....	....	....	....	....	....	....	....	4 A.
Connecticut	25	T.	2	1	8	....	....	....	....	....	11	....	....	....	....	....	8	....	....	....	....	9	....	....	....	....	....	....	....	....	....	....	....	....	39 T.
		A.	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Delaware	7	T.	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	5 T.
		A.	....	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	1	1	1	....	....	....	....	....	....	1	....	....	....	....	....	....	7 T.
District of Columbia	4	T.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Florida	34	T.	12	14	11	10	8	8	9	9	6	4	11	15	8	7	5	4	6	8	10	9	16	14	14	12	15	11	13	14	14	11	11	319 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Georgia	64	T.	7	5	2	2	3	2	1	1	2	4	5	7	3	2	2	2	4	7	2	3	1	....	1	6	8	2	4	5	2	1	1	97 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Idaho	20	T.	....	....	....	1	2	4	1	1	....	2	....	2	....	....	....	....	....	3	1	1	1	....	....	....	1	....	....	....	....	2	1	24 T.
		A.	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	7	1	2	1	....	....	3	7	6	....	....	....	....	....	....	9 A.
Illinois	56	T.	9	1	....	....	....	....	....	....	8	11	1	2	11	....	1	10	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	76 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7	....	1	....	....	1	2	2	4	1	....	....	....	....	....	38 T.
Indiana	44	T.	3	3	....	....	....	....	....	....	3	9	....	1	....	1	....	....	7	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 T.
Indian Territory	6	T.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 T.
Iowa	81	T.	5	....	....	....	....	....	....	....	14	5	6	15	9	3	3	7	....	....	4	1	3	7	7	4	....	....	....	....	....	....	....	....	93 T.
		A.	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....	1	....	....	....	....	....	....	....	....	11 A.
Kansas	81	T.	7	....	....	....	....	....	....	....	1	1	1	2	1	2	1	6	3	....	5	2	6	....	4	8	8	1	....	....	....	1	....	....	57 T.
		A.	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....	....	....	....	....	....	....	....	....	....	5 A.
Kentucky	39	T.	5	1	1	....	1	....	1	....	....	5	4	4	....	1	....	....	....	3	4	1	....	1	2	2	4	6	4	1	....	....	....	....	51 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	5	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Louisiana	49	T.	6	9	12	1	....	....	2	3	5	7	3	1	7	2	4	8	11	10	1	1	11	8	3	8	7	3	5	3	5	10	6	162 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
Maine	17	T.	....	1	4	....	....	....	2	....	6	....	....	....	1	....	8	1	....	2	4	8	1	1	....	1	3	4	1	....	....	....	1	....	49 T.
		A.	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Maryland	34	T.	2	4	2	....	....	....	....	....	3	3	....	3	3	....	5	....	....	2	7	2	....	....	....	....	....	8	3	....	....	2	1	50 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Massachusetts	83	T.	....	....	14	1	....	....	1	....	14	1	....	....	....	....	9	1	....	....	6	13	2	1	....	....	....	2	....	....	3	....	....	....	68 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Michigan	83	T.	12	1	....	....	....	1	1	....	3	1	....	....	....	....	1	5	7	....	1	1	....	....	....	....	....	....	....	4	5	....	....	....	43 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Minnesota	67	T.	3	....	....	....	4	2	5	1	8	17	12	1	18	3	9	2	....	....	2	....	1	....	5	2	....	....	1	....	....	....	1	....	110 T.
		A.	....	1	4	1	1	1	....	2	....	....	....	....	....	....	....	2	1	....	7	1	....	....	....	....	....	....	....	....	....	....	....	....	20 A.
Mississippi	48	T.	4	5	1	....	....	1	....	....	1	3	1	5	4	1	8	10	....	3	1	1	....	....	1	1	3	4	1	5	2	....	....	69 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
Missouri	101	T.	5	5	....	....	....	....	....	....	16	15	7	16	3	2	8	19	4	....	1	18	6	....	8	6	17	11	....	....	....	....	1	168 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Montana	29	T.	....	....	....	1	....	4	3	3	1	....	....	6	2	1	....	....	....	....	1	....	....	....	....	1	1	....	1	3	....	1	3	32 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	5	....	....	....	....	....	....	....	....	....	....	....	....	7 A.
Nebraska	70	T.	1	....	....	....	....	....	....	....	2	3	4	6	8	2	7	10	2	....	3	2	....	3	4	1	2	....	....	....	....	....	....	....	60 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	....	....	6 A.
Nevada	48	T.	5	5	3	4	3	....	....	2	2	....	....	....	....	....	....	2	3	2	....	2	4	1	1	6	7	6	8	6	7	4	2	85 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	1	....	....	....	....	1	....	....	....	....	1	1	....	....	7 A.
New Hampshire	28	T.	....	6	4	....	....	....	3	2	3	....	....	....	....	....	7	....	....	....	5	3	....	....	....	....	3	....	....	....	2	....	....	....	38 T.
		A.	....	....	1	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	1	....	....	....	....	....	....	....	....	9 A.
New Jersey	57	T.	1	8	18	2	....	....	....	....	3	1	....	3	7	....	25	....	....	10	5	10	....	....	....	....	....	4	....	....	....	1	....	....	98 T.
		A.	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
New Mexico	32	T.	4	....	1	....	....	....	....	1	....	1	1	....	2	1	2	2	2	1	2	3	1	1	2	1	2	....	....	....	1	2	2	35 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
New York	89	T.	4	14	8	1	....	1	1	6	12	1	1	....	2	....	9	1	....	1	8	2	....	....	....	....	7	1	1	....	8	3	....	92 T.
		A.	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
North Carolina	54	T.	3	8	11	3	3	....	....	3	3	12	8	6	3	....	19	8	2	3	5	4	3	6	5	1	2	....	....	....	....	....	....	121 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
North Dakota	33	T.	....	....	....	3	....	3	....	1	2	....	1	9	....	5	3	....	....	....	....	2	3	....	....	....	....	....	....	....	1	1	....	35 T.
		A.	....	....	1	1	....	....	....	....	....	1	....	....	....	....	....	....	....	7	8	....	....	....	1	....	11	10	....	1	....	....	....	....	13 A.
Ohio	145	T.	20	26	1	....	....	1	....	3	1	17	13	27	2	2	8	....	....	18	1	....	1	....	1	....	....	....	....	....	....	....	....	....	170 T.
		A.	....	1	....	....	....	....	....	....	2	....	....	....	....	....	1	....	1	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	1 A.
Oklahoma	17	T.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	7 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Oregon	71	T.	....	....	3	1	1	....	....	....	1	6	8	1	1	1	....	....	....	1	1	....	1	1	2	....	....	3	1	....	....	....	1	34 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	....	14 A.
Pennsylvania	82	T.	18	23	4	....	5	....	....	....	9	....	....	2	18	....	19	1	....	7	18	5	....	....	....	....	1	4	....	....	....	1	....	135 T.
		A.	....	....	5	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Rhode Island	7	T.	....	....	....	....	....	....	....	....	4	....	....	....	....	....	3	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	17 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
South Carolina	45	T.	1	....	3	6	3	1	....	1	1	1	7	10	4	....	8	1	3	7	4	9	2	....	1	3	6	1	6	8	2	....	....	99 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	4 A.
South Dakota	40	T.	1	....	1	....	3	....	3	3	4	3	3	5	5	2	5	3	....	3	1	3	1	2	....	....	....	....	....	....	....	....	1	....	52 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	3 A.
Tennessee	40	T.	4	2	2	....	....	....	....	....	2	5	5	5	2	3	7	5	5	2	8	....	1	1	....	1	4	8	6	5	....	....	....	....	81 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Texas	84	T.	6	3	3	2	1	1	....	3	3	3	2	2	....	1	1	4	3	3	2	4	3	4	1	3	2	2	....	1	4	4	5	76 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	2	....	....	....	....	....	....	....	....	....	....	....	....	4 A.
Utah	37	T.	2	1	1	3	2	5	3	1	....	....	....	....	....	2	2	4	1	....	2	1	3	1	3	....	1	1	2	3	5	5	....	54 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5 A.
Vermont	15	T.	....	4	5	....	....	....	3	5	1	....	....	1	....	8	....	....	1	5	3	....	....	....	....	4	....	....	....	3	....	....	....	....	43 T.
		A.	....	....	....	1	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3 A.
Virginia	41	T.	2	6	4	....	....	....	....	2	5	3	1	2	1	5	1	....	3	4	....	....	....	....	....	....	4	1	....	....	3	....	3	47 T.
		A.	....	....	....	....	2	....	1	8	....	....	2	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Washington	48	T.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7	1	1	....	10	1	....	....	....	....	....	1	1	1	31 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	1	1	1	....	1	....	....	....	....	....	13 A.
West Virginia	39	T.	1	3	....	....	....	....	....	....	1	7	3	2	....	1	3	....	1	4	6	....	....	....	1	2	5	1	....	....	....	....	....	....	41 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Wisconsin	65	T.	11	....	....	1	....	1	....	2	....	3	7	1	1	4	....	2	4	2	2	5	....	2	....	6	1	....	....	....	....	....	....	55 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
Wyoming	14	T.	....	1	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	6 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....	....	....	....	....	....	....	....	....	....	....	4 A.
Sums	2,720	T.	188	184	143	44	57	35	52	72	131	169	154	145	156	79	227	108	111	138	142	155	91	84	86	89	138	126	71	77	57	72	59	3440 T.
		A.	1	2	7	12	1	0	0	3	4	0	1	2	0	0	0	3	2	0	87	35	1	1	2	1	3	0	1	1	1	1	0	174 A.

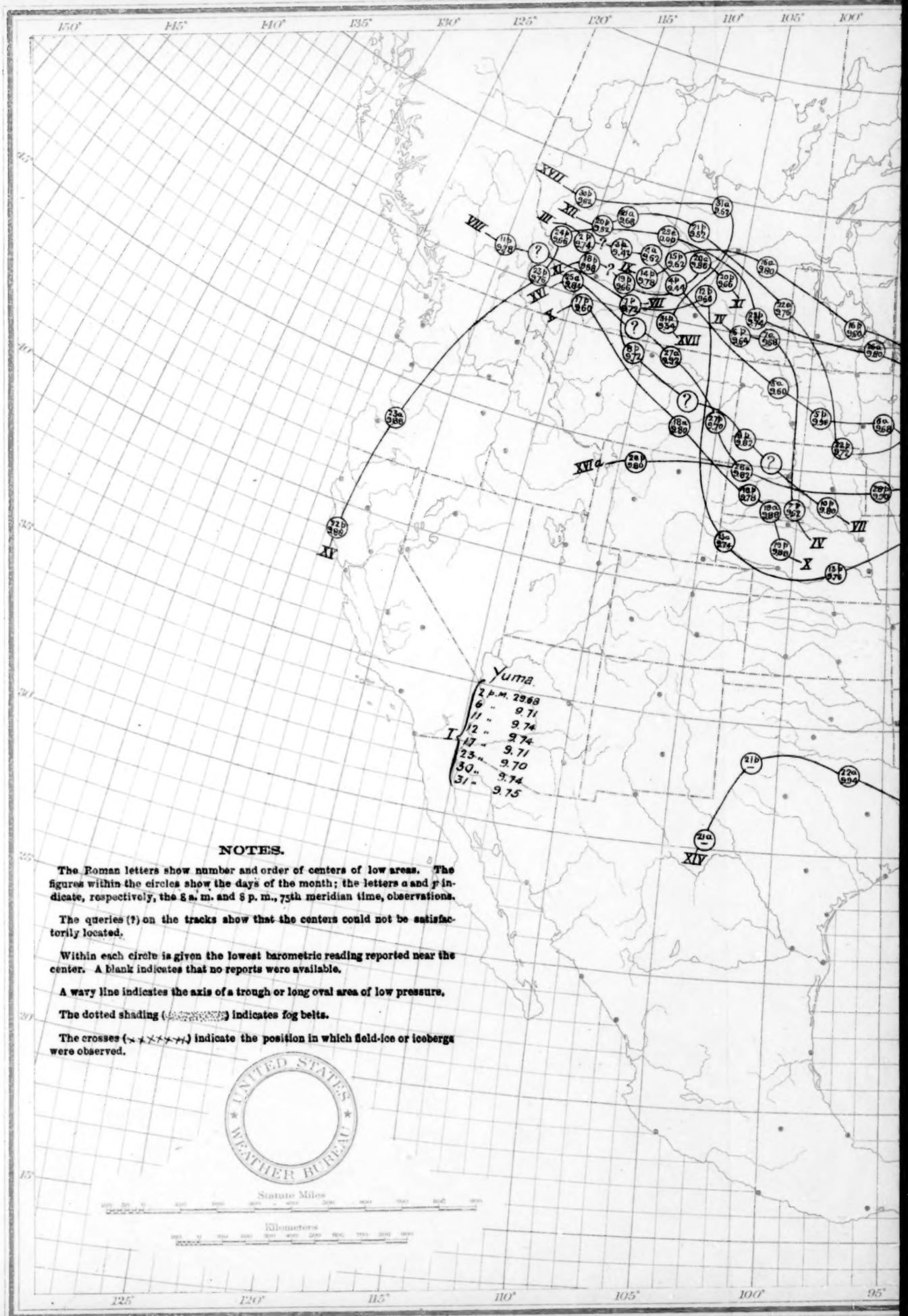
TABLE XII.—*Climatological data from the monthly reports of the State Weather Services, August, 1894.*

State.	Temperature.											Precipitation.					Director.
	Mean departure.	Maximum.	Date.	Station.	Minimum.	Date.	Station.	Monthly ranges. Greatest.	Station.	Least.	Station.	Mean departure.	Maximum. Amount.	Station.	Minimum. Amount.	Station.	
	°	°			°			°		°		*Inches.*	*Inches*		*Inches.*		
Alabama	−0.7	103	*	Newburg†	54	23	Scottsboro	49	Scottsboro	20	Carrollton†	+2.85	17.35	Wilsonville	2.50	Starlington	F. P. Chaffee.
Alaska																	Not yet organized.
Arizona	0.0	116	*	Parker	48	*	Flagstaff†	65	Parker	34	Dudleyville	+0.19	8.73	Bisbee	0.10	Yuma	W. K. Burrows.
Arkansas	0.0	104	*	Fort Smith †	47	6	Fayetteville	54	Corning	29	Winslow†	+1.37	18.01	Prescott	1.43	Newport b	F. H. Clarke.
California	+1.1	120	1	Volcano Springs	35	12	Boca	68	Escondido	31	Eureka	+0.02	1.45	Edmanton	0.00	Ager†	J. A. Barwick.
Colorado	+1.0	105	3	Gunnison	27	3	Breckenridge	73	Gunnison	20	Watkins	−0.29	4.10	Stamford	0.02	Las Animas	F. H. Brandenburg.
Connecticut	−1.5	89	24	Canton †	38	22	Voluntown	47	Canton	36	Hartford	−2.54	2.91	New London	0.57	Falls Village	J. Warren Smith.
Delaware		93	*	Wilmington	50	22	Millsboro †	41	Seaford	33	Dover		5.78	Wilmington	2.24	Seaford	C. P. Cronk.
District of Columbia																	See Maryland.
Florida	−1.1	97	*	Archer †	65	4	Manatee	29	Orlando †	19	Jupiter †	+0.73	13.67	Pensacola	1.02	Hypoluxo	E. R. Demain.
Georgia	+0.5	104	14	Brag	52	5	Dublin	42	Lumpkin	25	Camilla †	−0.01	13.70	Waynesboro	2.57	Lafayette	Park Morrill.
Idaho		110	24	Payette	30	29	Hailey	74	Hailey	42	Lake		1.72	Oakley	0.02	Fort Sherman †	J. H. Smith.
Illinois	+1.7	107	14	Mascoutah	40	*	Oswego †	61	Clear Creek	35	Halliday	−1.32	3.92	Palestine	0.27	Fort Sheridan	John Craig.
Indiana	+2.0	103	10	Butlerville	38	5	Valparaiso	60	Butlerville	42	Degonia Springs	−1.18	3.84	Madison	0.41	Hawpatch	Prof. H. A. Huston.
Indian Territory																	See Oklahoma.
Iowa	+3.6	108	10	Glenwood †	38	*	Elkader †	66	Atlantic	41	Fort Madison	−2.02	4.53	Newton	T.	College Springs	J. G. Sage.
Kansas	+2.2	112	15	Winfield	40	4	Fort Riley	65	Washington	42	Ness City	−2.10	2.51	Marmaton	T.	Hays City †	T. B. Jennings.
Kentucky	+1.1	105	*	Canton †	41	6	Sandy Hook	58	Carrollton †	30	Catlettsburg	−0.67	7.55	Hendricks	0.83	Alpha	Frank Burke.
Louisiana	−0.7	100	*	Liberty Hill	55	5	Sugartown	39	Bastrop	21	New Orleans †	+0.90	12.46	Many	2.20	Winnsboro	R. E. Kerkam.
Maine	−2.4	92	*	Madison	33	27	Farmington	56	Farmington	37	Eastport	−1.16	4.79	Cornish	1.32	Eastport	J. Warren Smith.
Maryland	−2.8	97	3	Darlington	39	*	Sunnyside	48	Sunnyside	29	Distrib. Res., D. C.	−1.42	4.91	Easton	0.93	Annapolis	C. P. Cronk.
Massachusetts	−1.4	94	24	Lowell c	34	22	Lake Cochituate	56	Groton †	23	Woods Holl	−2.73	6.09	Westboro	0.20	Leeds	J. Warren Smith.
Michigan	−1.4	99	27	Pontiac	30	23	Hesperia	64	Hesperia	37	Grand Haven	−2.55	4.72	Sault Ste. Marie	0.00	Fitchburg	E. A. Evans.
Minnesota	+1.5	103	8	Bonniwells Mills	32	3	Sunrise City	66	Sunrise City	38	Crookston	−1.97	4.75	Belle Plaine	T.	Dassel	E. A. Beals.
Mississippi	−1.1	103	14	Aberdeen	51	4	Corinth	48	Corinth	23	Bay St. Louis †	+1.82	9.28	Waynesboro	2.29	Vicksburg	R. J. Hyatt.
Missouri	+2.1	111	10	Gorin	39	5	Houston	68	Elmira	32	Fox Creek	−1.81	5.64	Whiteside	0.04	Oregon a	A. E. Hackett.
Montana	0.0	106	25	Musselshell	35	*	Kipp	69	Musselshell	38	Bozeman	−0.17	1.85	Hogan †	0.00	Fort Custer	J. M. Sherier.
Nebraska	+2.6	108	*	Arborville †	30	15	Hartington	68	Hartington	42	David City †	−2.17	2.57	Sutton	0.00	Beatrice †	G. A. Loveland.
Nevada	−0.8	105	*	Paradise †	30	30	Stofiel	73	Paradise	29	Battle Mountain	−0.35	2.36	Palmetto	0.00	St. Clair †	Prof. C. W. Friend.
New Hampshire	−3.6	92	*	Nashua †	30	27	West Milan	57	Berlin Mills	43	East Canterbury	−2.63	4.01	Wolfboro	0.27	Pennichuck Sta.	J. Warren Smith.
New Jersey	−1.1	97	1	Vineland	38	16	Charlotteburg	50	Imlaystown †	30	Beach Haven	−2.16	9.28	Beach Haven	0.15	Papakating	E. W. McGann.
New Mexico		103	12	Bloomfield	34	27	Halls Peak	58	Bloomfield	34	Santa Fe	0.00	6.57	Eddy	0.95	Deming	H. B. Hersey.
New York	−1.4	93	23	Wedgwood	31	26	Saranac Lake	54	Saranac Lake †	30	Setauket	−2.31	5.70	Southeast Res.	0.21	Willetts Point	Prof. E. A. Fuertes.
North Carolina	−1.1	99	*	Saxon †	48	*	Bakersville †	44	Saxon	19	Hatteras	+0.04	14.99	Pantego	0.83	Mount Airy	Dr. H. B. Battle.
North Dakota	+3.3	102	6	Fort Yates	30	3	Woodbridge	66	Woodbridge †	46	White Earth	−1.02	2.71	Kelso	0.17	Willow City	B. H. Bronson.
Ohio	+1.1	104	9	Lowell	36	*	Bowling Green †	63	Hillsboro	38	Frankfort	−1.40	7.25	Hanging Rock	0.03	Warren	L. N. Bonham.
Oklahoma	−2.0	109	15	Alva	46	6	Purcell	59	Alva †	41	Mangum	−2.07	3.42	Healdtown	0.15	Guthrie	J. I. Widmeyer.
Oregon	+0.9	109	23	Pendleton	23	31	Burns	73	Burns	32	Gardiner	−0.51	0.96	Crook	0.00	Bandon †	Hon. H. Hayes.
Pennsylvania																	W. P. Latham.
Rhode Island	−1.0	88	24	Providence c	42	22	Kingston	44	Providence c	26	Bristol	−1.60	2.74	Kingston	1.57	Bristol	J. Warren Smith.
South Carolina	+0.1	102	14	Shaws Fork	55	7	Batesburg	45	Batesburg	27	Georetown †	+1.28	12.26	Society Hill	0.88	Simpsonville	J. W. Bauer.
South Dakota	+5.0	105	*	Forestburg	30	3	Brookings	69	Shiloh	42	Bowdle	−1.19	3.76	Silver City	0.01	Highmore †	S. W. Glenn.
Tennessee	+1.8	103	15	Clarksville	52	*	Dyersburg †	48	Dyersburg	31	Newport	+0.01	7.91	Waynesboro	1.14	Rockwood	J. B. Marbury.
Texas	−2.6	105	*	Camp Eagle Pass †.	40	22	Hartley	62	Hartley †	10	Beaumont	+2.79	11.64	Orange	0.64	El Paso	D. D. Bryan.
Utah	+1.0	107	20	St. George	25	13	Scofield	64	Scofield	39	Salt Lake City	0.00	2.04	Scofield	0.14	Snowville	G. N. Safisbury.
Vermont	−6.6	90	24	Brattleboro	29	27	Jacksonville	58	Jacksonville	37	Burlington	+0.95	3.09	Enosburg Falls	0.32	Brattleboro	J. Warren Smith.
Virginia		101	10	Whittles Depot	46	*	Big Stone Gap	50	Dale Enterprise	29	Birdnest		9.99	Hampton	1.03	Hot Springs	Dr. E. A. Craighill.
Washington	+1.0	112	23	Sulphur	35	5	Bridgeport	64	Sulphur	30	Olga	−0.60	0.71	Tatoosh Island	0.00	Sulphur †	H. F. Alciatore.
West Virginia		103	10	Nuttalburg	38	*	Davis	62	Nuttalburg	36	Tannery		5.15	Cloverdale	0.27	New Cumberland	W. W. Dent.
Wisconsin	0.0	106	8	Prairie Du Chien	29	20	Florence	69	Valley Junction	45	Manitowoc		1.88	Harvey	0.00	Black River Falls	S. E. Emery.
Wyoming	+2.0	96	*	Sheridan †	32	13	Labarge	55	Labarge †	39	Fort Washakie	−0.16	2.17	Cheyenne	0.00	Wheatland	E. M. Ravenscraft.

*Two or more days.

† At other points in the State.

Chart I. Tracks of Cente



NOTES.

The Roman letters show number and order of centers of low areas. The figures within the circles show the days of the month; the letters *a* and *p* indicate, respectively, the 8 a. m. and 8 p. m., 75th meridian time, observations.

The queries (?) on the tracks show that the centers could not be satisfactorily located.

Within each circle is given the lowest barometric reading reported near the center. A blank indicates that no reports were available.

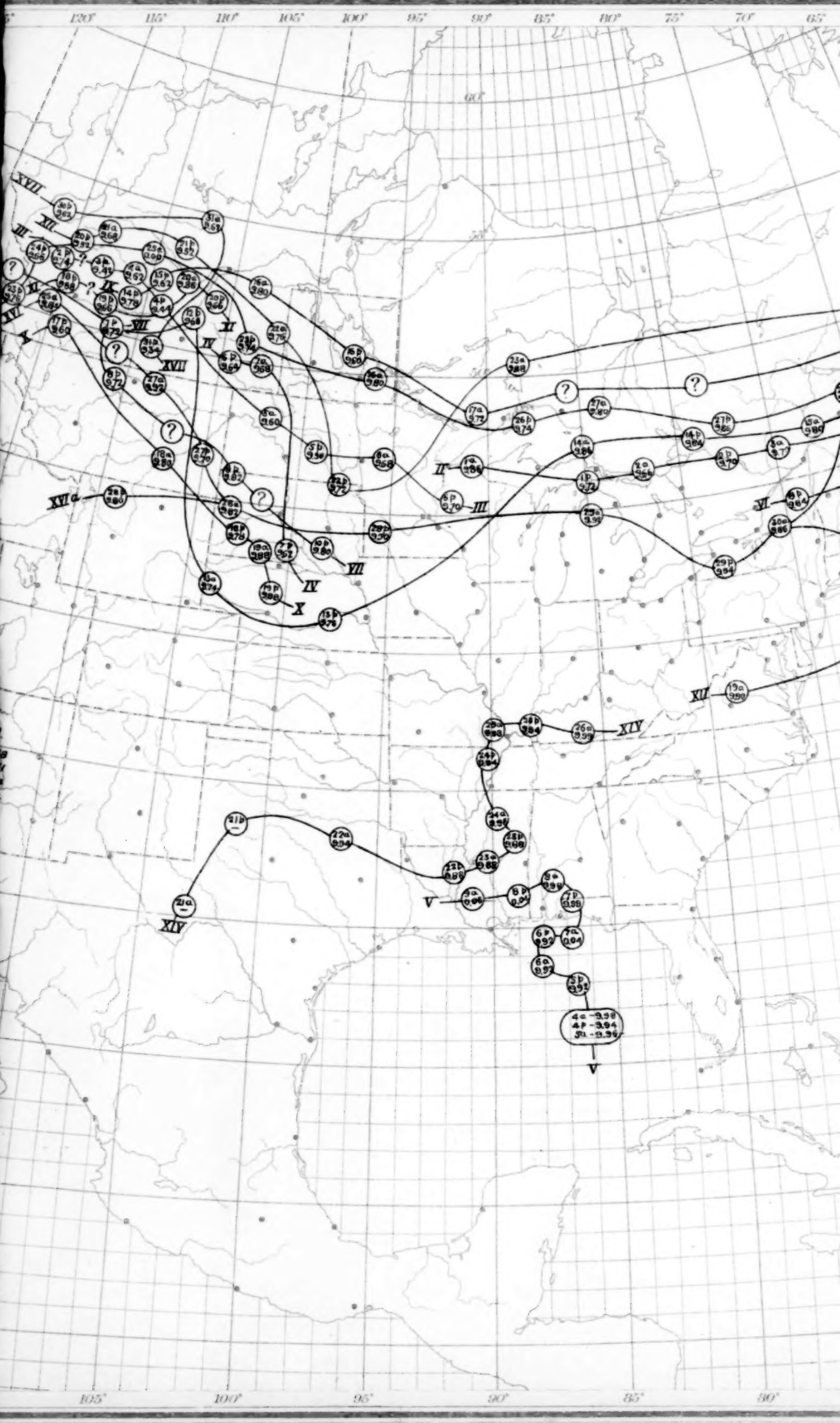
A wavy line indicates the axis of a trough or long oval area of low pressure.

The dotted shading (⁘⁘⁘⁘) indicates fog belts.

The crosses (× × × × ×) indicate the position in which field-ice or icebergs were observed.

UNITED STATES WEATHER BUREAU

Chart I. Tracks of Centers of Low Areas. August, 1894.



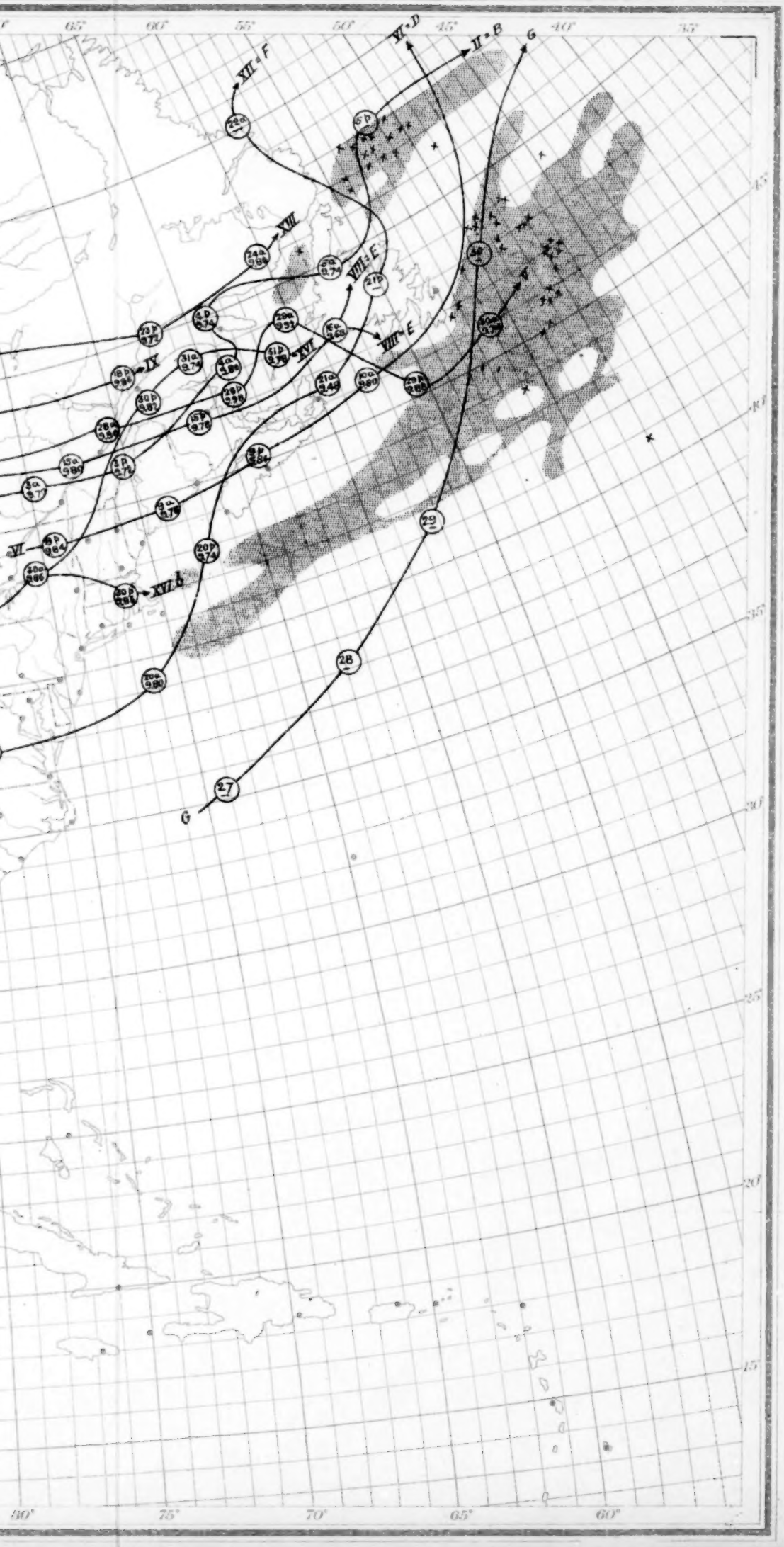

65°
60°
55°
50°
45°
40°
35°
XII = F
VI = D
II = B
G
XII
VIII = E
VIII = E
IX
XVI
VI
XVI b
G
45°
40°
35°
30°
25°
20°
15°
80°
75°
70°
65°
60°

Chart II. Isobars, Isotherms, and Resultant Winds. August, 1894.

Chart II. Isobars, Isotherms, and Resultant Winds. August, 1894.

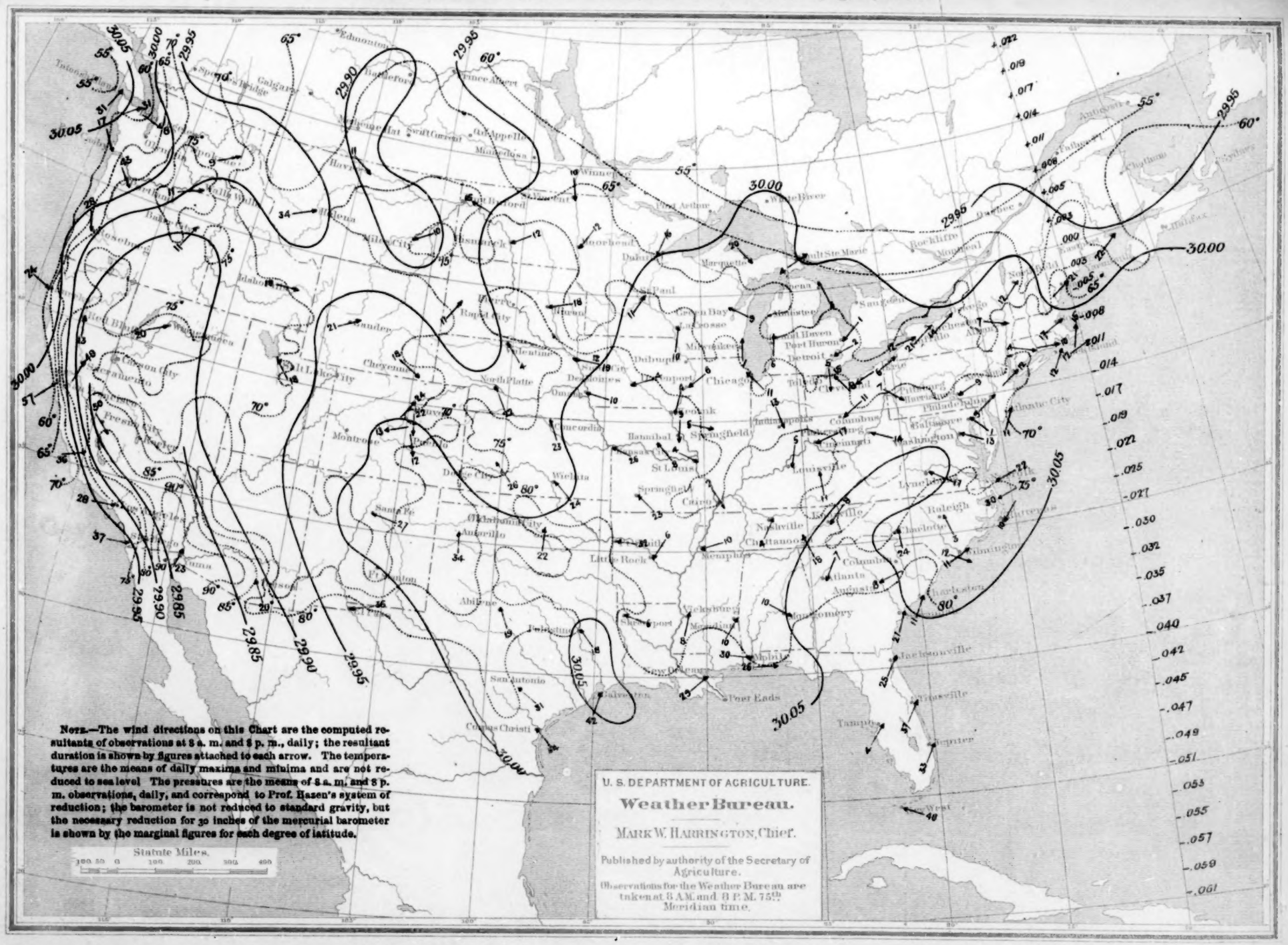

Note.—The wind directions on this Chart are the computed resultants of observations at 8 a. m. and 8 p. m., daily; the resultant duration is shown by figures attached to each arrow. The temperatures are the means of daily maxima and minima and are not reduced to sea level. The pressures are the means of 8 a. m. and 8 p. m. observations, daily, and correspond to Prof. Hazen's system of reduction; the barometer is not reduced to standard gravity, but the necessary reduction for 30 inches of the mercurial barometer is shown by the marginal figures for each degree of latitude.
Statute Miles.
100 50 0 100 200 300 400
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
MARK W. HARRINGTON, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A.M. and 8 P.M. 75th Meridian time.

Chart III. Total Precipitation. August, 1894.

Chart III. Total Precipitation. August, 1894.

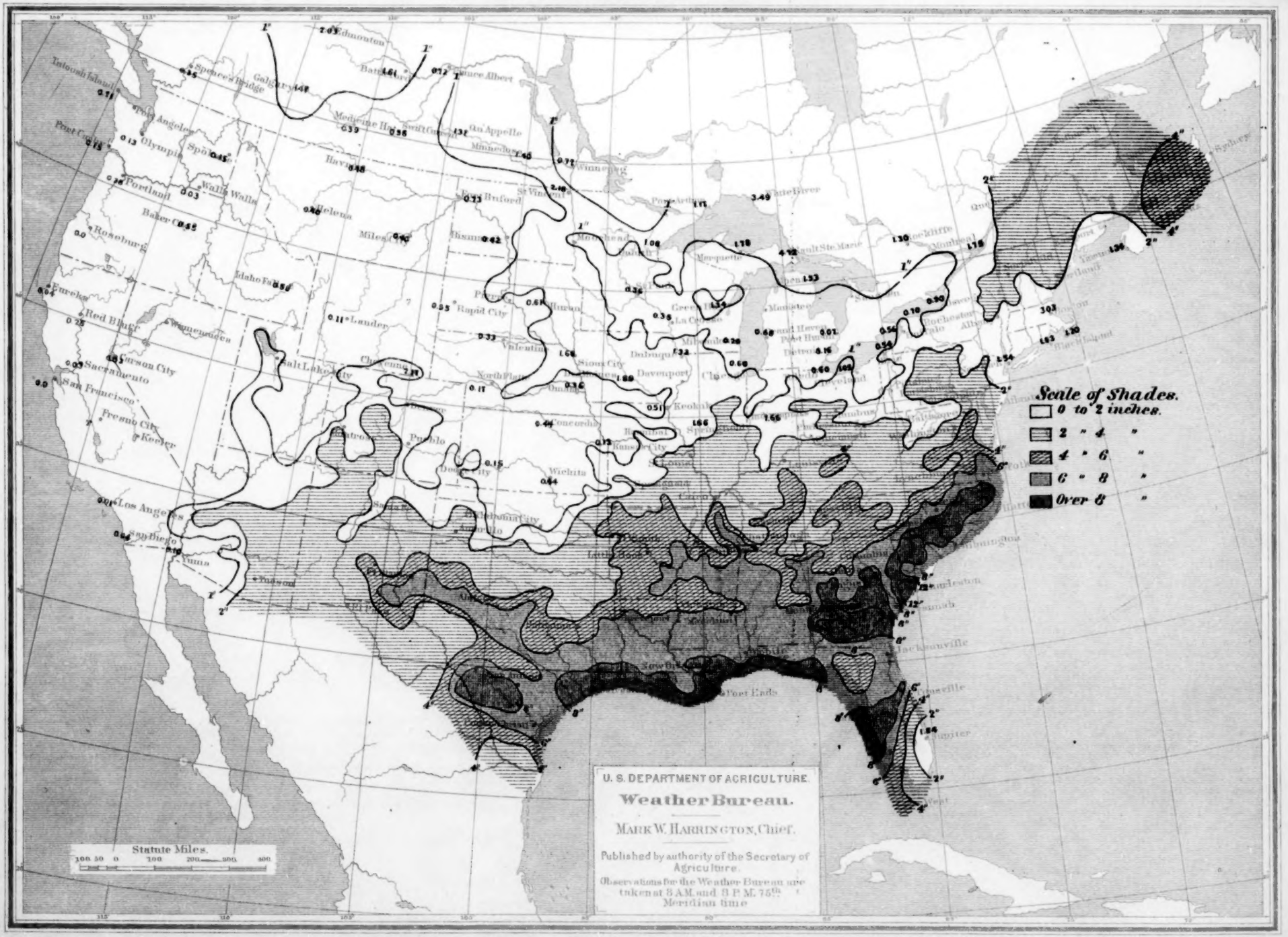
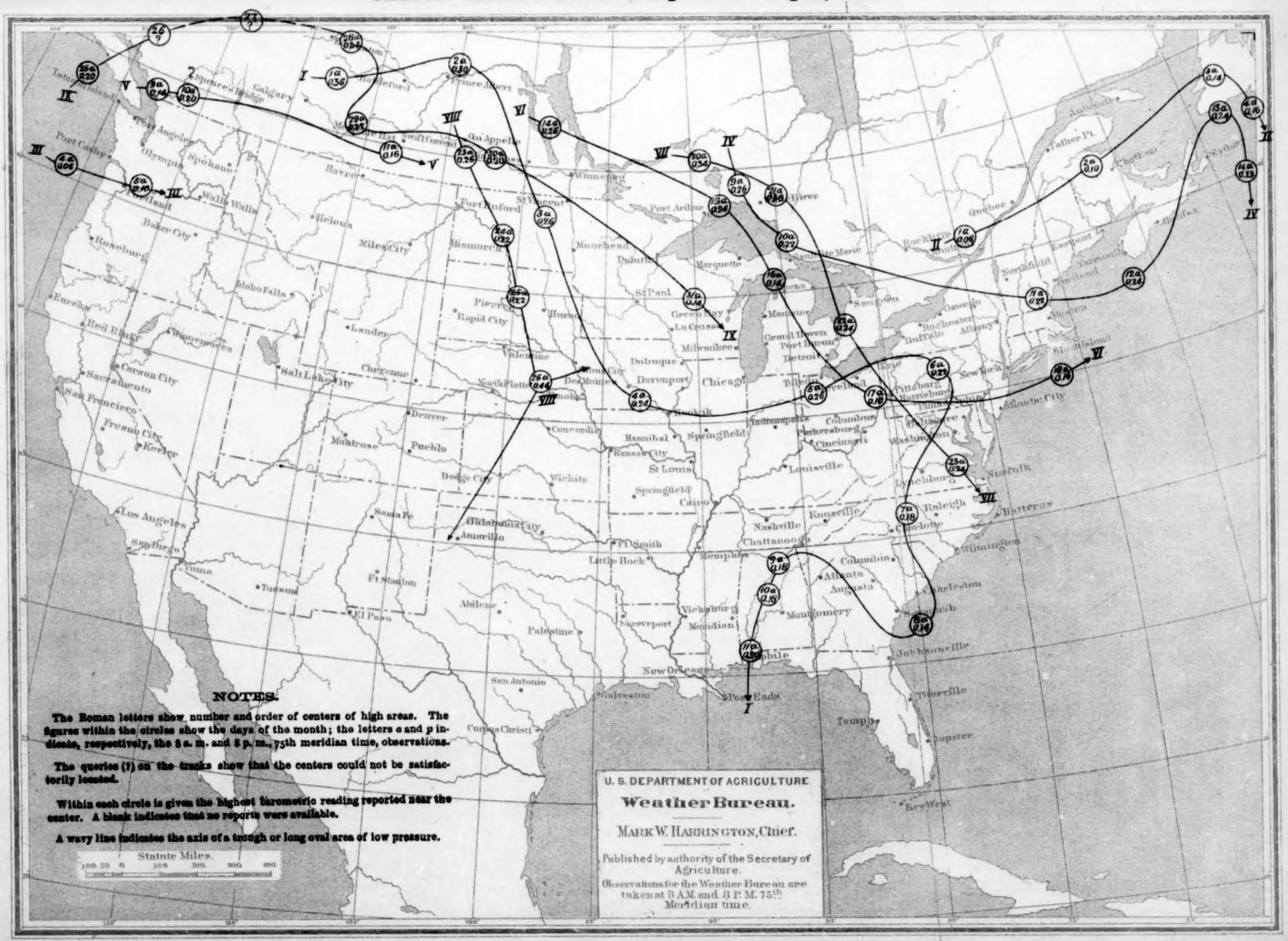

Scale of Shades.
0 to 2 inches.
2 " 4 "
4 " 6 "
6 " 8 "
Over 8 "
Statute Miles.
100 50 0 100 200 300 400
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
MARK W. HARRINGTON, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 5 A.M. and 5 P.M. 75th Meridian time.

Chart IV. Tracks of Centers of High Areas, August, 1894.

Chart IV. Tracks of Centers of High Areas. August, 1894.


NOTES.
The Roman letters show number and order of centers of high areas. The figures within the circles show the days of the month; the letters a and p indicate, respectively, the 8 a. m. and 8 p. m., 75th meridian time, observations.
The queries (?) on the tracks show that the centers could not be satisfactorily located.
Within each circle is given the highest barometric reading reported near the center. A blank indicates that no reports were available.
A wavy line indicates the axis of a trough or long oval area of low pressure.
Statute Miles
100 50 0 100 200 300 400
U. S. DEPARTMENT OF AGRICULTURE
Weather Bureau.
MARK W. HARRINGTON, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A.M. and 8 P.M. 75th Meridian time.